OPTIMIZATION OF LIGHT TRANSMISSION, MECHANICAL PROPERTIES AND DIMENSIONAL STABILITY OF A THICK BAMBOO BIO-CELLULOSE (GIGANTOCLOA ALBOCILIATA) FOR SOLAR CELLS SUBSTRATE LAYER

KANG CHUANG HSIEN

Master of Science In Materials Engineering
Universiti Putra Malaysia
2025

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KANG CHUANG HSIEN

Master of Science In Materials Engineering

2025

OPTIMIZATION OF LIGHT TRANSMISSION, MECHANICAL PROPERTIES AND DIMENSIONAL STABILITY OF A THICK BAMBOO BIO-CELLULOSE (GIGANTOCLOA ALBOCILIATA) FOR SOLAR CELLS SUBSTRATE LAYER

KANG CHUANG HSIEN

Master of Science In Materials Engineering

Optimization of Light Transmission, Mechanical Properties and Dimensional Stability of A Thick Bamboo Bio-cellulose (Gigantochloa albociliata) for Solar Cells Substrate Layer.

KANG CHUANG HSIEN

Department of Environment
Faculty of Forestry and Environment
UNIVERSITI PUTRA MALAYSIA

Abstract

The objective of this research project is to investigate the relationship between the interaction mass for the type of the blade consumed with the type of the blade consumed since the entire system is more to solar energy system. Another reasoning will be to interrogate the relationship between power output achieved by the BuzzTech 1800W 388V Cordless Grass Trimmer Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED whereby bamboo string, bamboo rattan, circular see-saw ring steel blade, triangular steel blade, nylon string and plastic blade are consumed respectively with the interaction mass of the type of the blade consumed since the entire system is more to solar energy system. Excess aims here will be to inspect the relationship between the efficiency achieved by the BuzzTech 1800W 388V Cordless Grass Trimmer Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED whereby bamboo blade, circular see-saw ring steel blade, triangular steel blade, nylon string and plastic blade are consumed respectively with the interaction mass of the type of the blade consumed since the entire system is more to solar energy system. All processes must be approved by **Putra Science Park (PSP) UPM** for the purpose of graduate requirements. All the essential forms and documents to be activated via physically and online will be "GS-05b STUDY SCHEME FOR GRADUATION", "GS-10a NOMINATION SUPERVISOR", "GS-11 RESEARCH PROGRESS REPORT", "GS-14a SUBMIT NOTICE OF THESIS SUBMISSION", "GS-15a THESIS SUBMISSION FOR EXAMINATION", "GS-16a SUBMISSION OF FINAL EXAMINATION AFTER VIVA", "GS-16b FINAL SUBMISSION OF THESIS", "GS-17 GRADUATION", "GS-25 INFORMATION ON PUBLICATION DURING CANDIDATURE", "GS-30 LETTER OF CERTIFICATION OF ENROLLMENT" and "GS-50 AMENDMENT OF COURSE STATUS" during this abstract production. Especially, the "GS-30 LETTER OF CERTIFICATION OF ENROLLMENT" is to be fulfilled first.

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of (Master of Science In Materials Engineering)

Optimization of Light Transmission, Mechanical Properties and Dimensional Stability of A Thick Bamboo Bio-cellulose (Gigantochloa albociliata) for Solar Cells Substrate Layer.

By

KANG CHUANG HSIEN

Month and 2025 of Viva Voce

Chair: Professor IR. DR. ABD. ABU TALIB, PhD
(Can be altered according to time preferences)
Faculty: Faculty of Forestry and Environment

The objective of this research project is to investigate the relationship between the interaction mass for the type of the blade consumed with the type of the blade consumed since the entire system is more to solar energy system. Another reasoning will be to interrogate the relationship between power output achieved by the BuzzTech 1800W 388V Cordless Grass Trimmer Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED whereby bamboo string, bamboo rattan, circular see-saw ring steel blade, triangular steel blade, nylon string and plastic blade are consumed respectively with the interaction mass of the type of the blade consumed since the entire system is more to solar energy system. Excess aims here will be to inspect the relationship between the efficiency achieved by the BuzzTech 1800W 388V Cordless Grass Trimmer Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED whereby bamboo string, bamboo rattan, circular see-saw ring steel blade, triangular steel blade, nylon string and plastic blade are consumed respectively with the interaction mass of the type of the blade consumed since the entire system is more to solar energy system. All processes must be approved by **Putra Science Park (PSP) UPM** for the purpose of graduate requirements. All the essential forms and documents to be activated via physically and online will be "GS-05b STUDY SCHEME FOR GRADUATION", "GS-10a NOMINATION SUPERVISOR", "GS-11 RESEARCH PROGRESS REPORT", "GS-14a SUBMIT NOTICE OF THESIS SUBMISSION", "GS-15a THESIS SUBMISSION FOR EXAMINATION", "GS-16a SUBMISSION OF FINAL EXAMINATION AFTER VIVA", "GS-16b FINAL SUBMISSION OF THESIS", "GS-17 GRADUATION", "GS-25 INFORMATION ON PUBLICATION DURING CANDIDATURE", "GS-30 LETTER OF CERTIFICATION OF ENROLLMENT" and "GS-50 AMENDMENT OF COURSE STATUS" during this abstract production. Especially, the "GS-30 LETTER OF CERTIFICATION OF ENROLLMENT" is to be fulfilled first.

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Oleh

KANG CHUANG HSIEN

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LIST OF ABBREVIATIONS

$a_{bminimum}$	Minimum angular acceleration for bamboo string
$a_{cminimum}$	Minimum angular acceleration for circular steel see-saw ring
$a_{nminimum}$	Minimum angular acceleration for nylon string
$a_{rminimum}$	Minimum angular acceleration for bamboo rattan
$a_{pminimum}$	Minimum angular acceleration for plastic blade
$a_{tminimum}$	Minimum angular acceleration for triangular steel blade
$a_{bmaximum}$	Maximum angular acceleration for bamboo string
$a_{cmaximum}$	Maximum angular acceleration for circular steel see-saw ring
$a_{nmaximum}$	Maximum angular acceleration for nylon string
$a_{pmaximum}$	Maximum angular acceleration for plastic blade
$a_{rmaximum}$	Maximum angular acceleration for bamboo rattan
$a_{tmaximum}$	Maximum angular acceleration for triangular steel blade
$a_{types\ of\ the\ materials\ maximum\ input}$	Maximum angular acceleration for any consumed materials of the blades
$a_{types\ of\ the\ materials\ maximum\ output}$	Maximum angular acceleration for any consumed materials of the blades
$a_{types\ of\ the\ materials\ minimum\ input}$	Minimum angular acceleration for any consumed materials of the blades
$a_{types\ of\ the\ materials\ minimum\ output}$	Minimum angular acceleration for any consumed materials of the blades
b	
cm	Centimeter
d_b	Diameter for bamboo string
d_c	Diameter for circular steel see-saw ring
d_m	Diameter for circular metal mowel plate for the “tail” of the rod
d_n	Diameter for nylon string
d_p	Diameter for plastic blade
d_r	Diameter for bamboo rattan
d_t	Diameter for triangular steel blade
d_{tbm}	Total diameter for bamboo strings after the insertion with the circular metal mowel plate for the “tail” of the rod
d_{tnm}	Total diameter for nylon strings after the insertion with the circular metal mowel plate for the “tail” of the rod
d_{trm}	Total diameter for bamboo rattans after the insertion with the circular metal mowel plate for the “tail” of the rod
f	
g	gram/grams
h	
iDEC	InfoComm Development Centre
i-Putra	PUTRA International Centre
j	
k	
L	
m	meter
m_b	Interaction mass for bamboo string
m_c	Interaction mass for circular steel see-saw ring
m_m	Mass for circular metal mowel plate for the “tail” of the rod
m_n	Interaction mass for nylon string
m_p	Interaction mass for plastic blade
m_r	Interaction mass for bamboo rattan
m_t	Interaction mass for triangular steel blade

m_{tbm} **Total mass for bamboo strings after the insertion with the circular metal mowel plate for the "tail" of the rod**

m_{tnm} **Total mass for nylon strings and after the insertion with the circular metal mowel plate for the "tail" of the rod**

m_{trm} **Total mass for bamboo rattans after the insertion with the circular metal mowel plate for the "tail" of the rod**

$m_{types\ of\ the\ materials}$ **Interaction mass for any consumed materials of the blades**

o

p

Q

r_b **Radius for for bamboo string**

r_c **Radius for circular steel see-saw ring**

r_n **Radius for nylon string**

r_p **Radius for plastic blade**

r_r **Radius for for bamboo rattan**

r_t **Radius for triangular steel blade**

r_{tbm} **Radius for bamboo strings after the insertion with the circular metal mowel plate for the "tail" of the rod**

r_{tnm} **Radius for nylon strings after the insertion with the circular metal mowel plate for the "tail" of the rod**

r_{trm} **Radius for bamboo rattans after the insertion with the circular metal mowel plate for the "tail" of the rod**

s **seconds**

$t_{bminimum}$ **Minimum time taken for bamboo string**

$t_{cminimum}$ **Minimum time taken for circular steel see-saw ring**

$t_{nminimum}$ **Minimum time taken for nylon string**

$t_{pminimum}$ **Minimum time taken for plastic blade**

$t_{rminimum}$ **Minimum time taken for bamboo rattan**

$t_{tminimum}$ **Minimum time taken for triangular steel blade**

$t_{bmaximum}$ **Maximum time taken for bamboo string**

$t_{cmaximum}$ **Maximum time taken for circular steel see-saw ring**

$t_{nmaximum}$ **Maximum time taken for nylon string**

$t_{pmaximum}$ **Maximum time taken for plastic blade**

$t_{rmaximum}$ **Maximum time taken for bamboo rattan**

$t_{tmaximum}$ **Maximum time taken for triangular steel blade**

$V_{bminimum}$ **Minimum angular velocity for bamboo string**

$V_{cminimum}$ **Minimum angular velocity for circular steel see-saw ring**

$V_{nminimum}$ **Minimum angular velocity for nylon string**

$V_{pminimum}$ **Minimum angular velocity for plastic blade**

$V_{rminimum}$ **Minimum angular velocity for bamboo rattan**

$V_{tminimum}$ **Minimum angular velocity for triangular steel blade**

$V_{types\ of\ the\ materials\ maximum\ input}$ **Maximum input angular velocity any consumed materials of the blades**

$V_{types\ of\ the\ materials\ maximum\ output}$ **Maximum output angular velocity any consumed materials of the blades**

$V_{bmaximum}$ **Maximum angular velocity for bamboo string**

$V_{cmaximum}$ **Maximum angular velocity for circular steel see-saw ring**

$V_{nmaximum}$ **Maximum angular velocity for nylon string**

$V_{pmaximum}$ **Maximum angular velocity for plastic blade**

$V_{rmaximum}$ **Maximum angular velocity for bamboo rattan**

$V_{tmaximum}$ **Maximum angular velocity for triangular steel blade**

$V_{types\ of\ the\ materials\ minimum\ input}$	Minimum input angular velocity any consumed materials of the blades
$V_{types\ of\ the\ materials\ minimum\ output}$	Minimum output angular velocity any consumed materials of the blades
w	
x	
y	
z	
A	Ampere
B	
Co,Ltd.	Company Limited by Shares
D.I.Y	Do-it-Yourself
E	
$F_{bmaximum}$	Maximum circular angular force for bamboo string
$F_{cmaximum}$	Maximum circular angular force for circular steel see-saw ring
$F_{nmaximum}$	Maximum circular angular force for nylon string
$F_{pmaximum}$	Maximum circular angular force for plastic blade
$F_{rmaximum}$	Maximum circular angular force for bamboo rattan
$F_{tmaximum}$	Maximum circular angular force for triangular steel blade
$F_{types\ of\ the\ materials\ maximum\ input}$	Maximum circular angular input force for any consumed materials of the blades
$F_{types\ of\ the\ materials\ maximum\ output}$	Maximum circular angular output force for any consumed materials of the blades
$F_{bminimum}$	Minimum circular angular force for bamboo string
$F_{cminimum}$	Minimum circular angular force for circular steel see-saw ring
$F_{nminimum}$	Minimum circular angular force for nylon string
$F_{pminimum}$	Minimum circular angular force for plastic blade
$F_{rminimum}$	Minimum circular angular force for bamboo rattan
$F_{tminimum}$	Minimum circular angular force for triangular steel blade
$F_{types\ of\ the\ materials\ minimum\ input}$	Minimum circular angular input force for any consumed materials of the blades
$F_{types\ of\ the\ materials\ minimum\ output}$	Minimum circular angular output force for any consumed materials of the blades
FCC	Federal Communications Commission
FHAS	Faculty of Forestry and Environment
GS form/forms	Graduate Studies form/ forms from SGS
H	
ISBN	International Standard Book Number
ISSN	International Standard Serial Number
JKKPPPTP	Supervisor and Thesis Examiner Appointment Subcommittee
JKPPT	Thesis Examination Committee
JKPSU	University Graduate Studies Committee
K	
L	
MCC	MALAYSIAN CONFORMITY MARK
MR	MARGINAL REVENUE
Msc	Master
N	Newton
O	
$P_{bmaximum}$	Maximum power output for bamboo string
$P_{cmaximum}$	Maximum power output for circular steel see-saw ring
$P_{cmaximum}$	Maximum power output for nylon string

$P_{pmaximum}$	Maximum power output for plastic blade
$P_{rmaximum}$	Maximum power output for bamboo rattan
$P_{tmaximum}$	Maximum power output for triangular steel blade
$P_{types\ of\ the\ materials\ maximum\ input}$	Maximum power input for any consumed materials of the blades
$P_{types\ of\ the\ materials\ maximum\ output}$	Maximum power output for any consumed materials of the blades
$P_{bminimum}$	Minimum power output for bamboo string
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$P_{rminimum}$	Minimum power output for bamboo rattan
$P_{tminimum}$	Minimum power output for triangular steel blade
$P_{types\ of\ the\ materials\ minimum\ input}$	Minimum power input for any consumed materials of the blades
$P_{types\ of\ the\ materials\ minimum\ output}$	Minimum power output for any consumed materials of the blades P Power
PhD	Doctor of Philosophia/Doctor of Philopsophy
PSP	Putra Science Park
PT (P/O)	Administration Assistant (Clerical and Operational)
PT	Administration Officer
Q	
R	Restriction of Hazardous Substances
SDN. BHD.	Sendirian Berhad
SIRIM	Standard and Industrial Research Institute of Malaysia
SGS	School of Graduate Studies
TD	Deputy Dean
TP	Deputy Director
UPM	Universiti Putra Malaysia /University of Putra Malaysia
V	Voltage
W	Watt
WPS Office	Work, Presentation and Spreadsheets Office
X	
Y	
Z	
>	The mathematical symbol which symbolizing greater than and formally used more in digit expression stuffs
=	The equal symbol for showing similar digits sequences
÷	The division symbol in progressing division progress amonst digits
×	The multiply symbol in progressing multiplication progress among digits
+	The plus symbol in connecting the connection of the digits when they are summing one another
–	The minus symbol in connecting the connection of the digits when they are deducting one another
( )	The combination of left and right brackets

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CHAPTER 1
INTRODUCTION

1.1 Theory

Quantization and qualification of materials, calculations and procedures of work are required. The **circular** force experienced by the advanced-modified bamboo solar cells is defined as the cross product of mass of the particular advanced-modified bamboo solar cells blades with the circular acceleration. The behaviour and direction of this force must behave perpendicular to the mass of the particular advanced-modified bamboo solar cells blades. Since the mass of the particular advanced- modified bamboo solar cells blade must be smaller so that it is better to be stored, kept and managed in all choices of places. In order to increase the value of the circular force exerted by the advanced-modified bamboo solar cells, the circular acceleration must keep on increasing constantly. In this condition, the mass, the circular acceleration, the interaction volume of the bamboo solar cells with the ultraviolet radiation with the sunlight, the rate of photons attached through them and the turbine velocity of the particular advanced-modified bamboo solar cells blades are the manipulating variables which should be more focused to. The fixed variable in this research project will be solar energy resources. The observable variable which can be found in this project will be the efficiency rate of the entire bamboo solar cells systems. By applying the Principle of Conservation Energy, the solar energy which is the main source of energy of the
particular advanced-modified bamboo solar cells blade, the solar energy is converted to heat energy to kinetic energy. The interaction volume of the bamboo solar cells with the ultraviolet radiation with the sunlight is interpreted as the multiple products of width, height and length of itself. The rate of photons attached to the interacted bamboo solar cells is defined as the number of photons attached through the interacted surface-volume in one interval of duration.

Furthermore, the turbine velocity achieved by the bamboo solar cells is defined as the ratio of the change in circular curvature distance travelled by itself to that of the interval of duration. Circular acceleration of the contacted bamboo solar cells is derived as the rate of change of turbine velocity achieved by itself. Mass of the specified bamboo solar cells is devoted as the centre of gravity of itself where molecules within the internal advanced-modified volume of the bamboo solar cells structure are bounded upon earth gravitational field strength and pulling. Solar energy of the bamboo solar cells can be apprehended as the energy resources of the sunlight emitted from the sun core of the which is the centre of the

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universe and galaxy astronomically. The efficiency of the invented bamboo solar cells from this research is denoted as the ratio of power output to that of the power input accepted by itself. It can be comprehended also as the fractional of work done by the innovated bamboo solar cells from this research to that of work done **to** the innovated bamboo solar cells from this research. Generally, the work done to the bamboo solar cells had quite similar meaning with the power input accepted by itself. To add on, the work done by the bamboo solar cells had quite the same understanding with the power output accepted by itself.

About the Principle of Conservation of Energy, there are some additional subordinates that are deserved in this research project too, examples given here are First's Law, Second's Law, Third's Law and Zero's Law of Thermodynamics. During the mechanical testing via the allowed advanced compressor, any reasonable compressed force whereby the bamboo solar cells are to be stationary mode this time. The advanced bamboo solar cells are too thin until approximately become "nothing else" to sense which cause itself difficult to compress and thus, averting itself to arrive and exceed the unintended critical yielding point. Yielding point of the bamboo solar cells is declared as the point where the molecular planar system of itself is triggered where the equilibrium position is shifted. Yielding point and Breaking point of the tacked solar bamboo solar cells are points which should be differentiated.

Breaking point of the focused bamboo solar cells is announced as the point where it started to break after the manipulation of equilibrium phase and there will be minor alteration in the solid physical states of itself. The bamboo solar cells become more scattered to unfunctional pieces when the breaking point is achieved by itself.

Regarding to the vibrational section for the advanced bamboo solar cells, the vibrational motion experienced by each molecules inside the bamboo solar cells is not very active since the scale of wave profiles across the bamboo solar cells are not too huge. Hence, vibrational motion is difficult to be stimulated across itself where some sort of vibrational stuffs passed,connected and conducted through it. The kinetic energy will be more to the outerior sectors and parts of the bamboo solar cells involved. The internal kinetic energy of the molecules inside the bamboo solar cells involved should be less vigorous during the performance of circular motion. Hope the readers are able to differentiate internal and external kinetic energy that existed in the advanced bamboo solar cells system. The heat energy in this system is actually not for the sake of dissociating and changing the physical states of the advanced bamboo solar cells system, on contrary, it is the energy mechanism and metabolism which should be

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described during the energy conversion phase. The heat energy can be distributed to internal heat energy and external heat energy first. The external heat energy can be in endothermic type where **heat energy** is absorbed conversion from the atmosphere surrounding it while the internal heat energy should be exothermic type where **heat energy** is released conversion to the atmosphere surrounding it. The inner and outer temperature change of the specified bamboo solar cells is not in drastic pace. It will not overheat as **the cooling effec**t should be encountered afterward.

For the inner rotational motion among each molecules inside the advanced bamboo solar cells, it is not vigorous. However, the outer rotational motion constituted by the affected outerior bamboo solar cells involved is very strong consistently.

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1.2 Problem Statement

Majority master students are required to publish journal articles with respective chairman and members of the Supervisory Committee involved. It is always bear in mind that any publication in fulfillment of the requirements must always mention the student affiliation with University. Every master students who had filled for a patent or utility innovation or copyright or industrial design or printed circuit board based on research conducted during their respective candidature and it is equivalent to one journal article which may apply in writing to the Dean for exemption. All processes must be approved by **Putra Science Park (PSP) UPM** for the purpose of graduate requirements. Most of the postgraduate students must comply with the publication requirements before going through the University Graduate Studies Committee (JKPSU) and Senate.

The transportation-travel time management within the University of Putra Malaysia, Serdang Campus sometimes quite consuming where there will be some precious time leak appearance. All the transportation supports which are available inside the campus are not free of all, sometimes it is grateful since discounts are given to any eligible students under public transportation organization. Discounts are given only when registration to be done and it is time-consuming during the queuing section since there are many transportation users awaiting for their respective turns and orders. The presentation styles towards the alleged examiners are actually quite restricted to “Canva Software” during the submission session. The presentation styles should be more open-accessed such as preparation of posters, “Powerpoint”, “Slideshare”, mini concert show and more to go. The duration of the research project is limited to around 10 minutes. To be frank, the reason is to test the time management limit of postgraduate students in organizing their respective presentation of the research work.

The tuition fee is necessary to settle off in order to continue for the postgraduate study section although the master and doctor are in the first and second semester of the beginning of the new year. The tuition fee is expensive and no discount for that except it is under prestigious scholarship assistance by various legal companies and corporations. Prestigious scholarships also had capacities and limits. The entrance dutying for each school, institute, faculties, laboratories and the bearings move on are quite hectic during the **peak hour** that sometimes cause over-congestion for the administration sites also as well as the postgraduate sites during exchange of the documents physically in front of the counter.

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For instance, one special day is to occur and everyones are rushed to attend it.

Sometimes, maintenance operations can be suddenly done for the implications of upgrading University Services, Servers, Facilities and Customer Satisfaction Boards. This will cause more holes to prestigious time, then, replacements and postponements also.Nevertheless, it does not always strike and we should learn to respect and tolerate one another.

Each respective research topics is challenging and tough as every postgraduate students is to be trained and prepared to lead the world one day. The difficulties of getting fans and customer supports in reading through respective legal instructive online journals, articles, newspapers and magazines for newbies who are first time publishing their own research paper to be more convenient,confident and thrusted.

Each undergraduate and postgraduate students are compulsory to sign in and log in for their respective "Turnitin" accounts. Nevertheless, the problems with Enrollment key and Class ID will persisted if the relevant responsible instructors not aware about it after the participant named "KANG CHUANG HSIEN" already log in to account earlier as should since preparation should be done before the authorized deadlines.

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1.3 Objectives

1. To investigate the relationship between the interaction mass for the type of the blade consumed with the type of the blade consumed since the entire system is more to solar energy system.
2. To interrogate the relationship between the efficiency achieved by the BuzzTech 1800W 388V Cordless Grass Trimmer Mesin Rumput Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED whereby bamboo blade, circular see-saw ring steel blade, triangular steel blade,nylon strings and plastic blade are consumed respectively with the interaction mass of the type of the blade consumed since the entire system is more to solar energy system.
3. To inspect the relationship between power output achieved by the BuzzTech 1800W 388V Cordless Grass Trimmer Mesin Rumput Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED whereby bamboo blade, circular see-saw ring steel blade, triangular steel blade, nylon strings and plastic blade are consumed respectively with the interaction mass of the type of the blade consumed since the entire system is more to solar energy system.

1.4 Limitation of this research project

1. Restricted to one energy resource component which is solar energy and cannot be acted vice-versa.
2. Only available inside the University of Putra Malaysia where seldom indulge to outside government and international activities, example given here will be Putra Science Park (PSP) UPM is a must under Postgraduate Candidature Checklist.
3. The traffic flows of some pathways inside in the compound of University of Putra Malaysia are **limited to one way choices only.**

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1.5 Research Questions

1. How is the the relationship between the interaction mass for the type of the blade consumed with the type of the blade consumed since the entire system is more to solar energy system?
2. What is the relationship between the efficiency achieved by the BuzzTech 1800W 388V Cordless Grass Trimmer Mesin Rumput Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED whereby bamboo strings, bamboo rattans, circular see-saw ring steel blade, triangular steel blade, nylon strings and plastic blade are consumed respectively with the interaction mass of the type of the blade consumed since the entire system is more to solar energy system?
3. Why is there a relationship between power output achieved by the BuzzTech 1800W 388V Cordless Grass Trimmer Mesin Rumput Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED whereby bamboo strings, bamboo rattans, circular see-saw ring steel blade, triangular steel blade, nylon strings and plastic blade are consumed respectively with the interaction mass of the type of the blade consumed since the entire system is more to solar energy system?

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CHAPTER 2
LITERATURE REVIEW

The rate of growth and metabolism of bamboo plant is considered to be the fastest amongst other plant species. Bamboo are easily to be raise and cultivated. Although bamboo plant category is C3 and not C4 type exactly, however, it is still the eco-friendly choices for this research. This means that the rate of photosynthesis through the whole bamboo is defined as the number of photons bypassing through the light reactor for bamboo in one designed duration minutes, hours, days, years, centuries and so on Bamboo also cause less unintended pollution to the ecology and environment. The weight and mass of bamboo are to be concerned to be lighter due to its unique interior macroscopic and microscopic characteristics. The thickness films of bamboo stems are thinner.

Water can be easily to be obtained from bamboo stems since one individual of bamboo stems is easily penetrated by gunshot and bullets. Nevertheless, the strength of individual stationary bamboo stems can be improved when all the bamboo stems are in grouping formation.

It can be doubted by the comparison and reasoning for the combination of ants and bees which form this kind of strength. The rate of conversion of carbon atoms and photons which have been attached and bound upon the surface of innovated and generated bamboo solar films to the glucose energy forms are higher whereby the principles of conservation of energy are secured. The energy is converted from light energy to kinetic energy to heat energy and more to be joined.

The elasticity of the bamboo stems are in moderated zone and arena. The breaking points of one individual bamboo is weaker if compared to the infamous Agar wood.

This means and implies the harvesting and mobilization of the whole bamboo stems from one place to another are easier if compared to other di-cellulose trees and plants. The modulus of the bamboo stems are to be taken to indulged conditions.

The bamboo stems are less compacted with allonized molecules, atoms and ions which cause it to be easily buoyant upon up the water surface. The layering of the bamboo which extends from the initial point to the final point is bridging from one junction to another through much researcher speculation and investigation.

Bamboo flows up water and seldom sinks downwards to the water. Some traditional ethics such as Orang Asli love to use bamboo to craft boats. From these sentences, it is emphasized that the duration taken for solo bamboo to travel from one initial point to another destination point. For

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instance, across the river and the sea. Sometimes it is risky to pick bamboo since the water leaks to the hollow structure of the bamboo when it got penetrated by a bullet, knife and any sharp objects. However, from this point of view, bamboo is difficult to get **rusted** when being partnered with water.

Some Chinese ethnics use bamboo cups to store cold water, however, overhot water can destroy the original bamboo structure except it is being modified bamboo. The bamboo water behaviour nature.

Some Bumiputera ethnics love use bamboo to cook prawns with rice. Sour and tasty.

The possibility of the inner part of the bamboo to conduct electricity will be higher due to the water content of itself. The tendency of mobilized and charged electrons inside the water phenomenon of the inner bamboo is causing the electrical current to travel across it. The electrical charges coulomb which stored inside the bamboo are underestimated.

The money and appreciation value of bamboo in the market are excellent and high-demanding too. That is why bamboo is to be chosen to be one of the materials in this research.

It is nice to prefer “bam bam”

The efficiency of the bamboo films to be electrical conductors is greater and in contrast , it is not suitable to be electrical insulators which block the electrical paveway and channel. The electrical resistance of bamboo is lower among other plant members

Although bamboo stems and leaves are not colourful and store a unique appearance of colours produced by flowering plants. It is not neglected in this research. Sometimes, Bamboo does not consist of multiples and universe colour pigments ingredients. This will be the weak point of the bamboo. In this world, it is yet to be discussed and experimented that the maximum heights gained by the bamboo is not to be defined well properly. It is reminded of why the question comes across the limit of heights of bamboo if negotiated with other plant diversities profile and information. It is to be anticipated most of the resources are judged from one individual bamboo stems will confront troubles and problems in shortage of height limit section.

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The circular chains which existed inside bamboo are not in converging mode but in diverging mode. The circular round rings are to be observed to be distributed one another with one distance.

The life span and half-life of the bamboo can be improved. The weak point to be recalled is bamboo is easily decayed with decay constant, deterioration and dissociation consideration factors involved. This proves that the age limit of the bamboo is not long-lasting forever and will be corrupted one day also. So, the structure of the bamboo should be modified with refussion and diffusion of other advancing atoms and molecules particles revision.

The wave profiles of the bamboo are to be vibrated and not easily break if it is modified. The wave propagation in bamboo is very energetic and active when it is operated through any accessible and legal vibrator machines. The light refractive index of the bamboo is to be moderate. The light diffraction through bamboo at the axis of the focal point is not far away when light is diffracted through it. The angle of the light bending is approaching the focal point in order to collect more photons. The magnetic power of the bamboo is weak as the ferrum and iron contents within it are not enough to attract it to the magnet compound. Test it with a magnet.

Moreover, the heat resistances of the bamboo is weaker if compared to Agar wood species and Red wood species which act as examples. When the bamboo stems undergo heat which Malay usually cook for the purpose of "lemang", it can be witnessed that the bamboo turns dark , after long hours, it starts to defracture. Nevertheless, the lemang had fragrant scents that tasty in the end through the mouth. This decay only can be prevented when the internal molecular systems of the bamboo are altered. Bamboo can be called as buluh, sometimes known as remang. The ancient styles of cooking.

Also, when bamboo is being frictional by any accessible sharp objects, the powders of the bamboo still have chances to be investigated for its benefits. Collect the powders from the frictioned bamboo, always remember not to overheat them.

Try to display the bamboo stems from high altitude. The buoyancy effect is very beautiful. Make sure to allocate the original shape first. The shape of the bamboo actually can be altered.

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The design and coordinate of the bamboo solar cells are in questioning. The bamboo solar cells, of course, the posture must be exposed to sunlight which consist of ultraviolet radiation. The bamboo solar cells can actually merge with the fan system to convert heat energy to wind energy although it is upon land and sea. When the bamboo cells turn to blading styles on the terrain, river level and sea level, enjoyed with the wind blowing across them, then it will be operated well. Furthermore, the greenery circulation from the bamboo seen more better than nowadays plastic and steel blades which are the components of the fan. The what so known mini and gigantic bamboo solar cells fan. Try to implant them in open-air turbine system, not an enclosed one. Be careful not to underestimate bamboo solar cells which cause powerful circulation forces as injury might occur. That is why hand and leg never too much approach to any bamboo solar cells turbine system.

Allocated all blading systems and coallide them in one linear motion line. Ensure all of them are in very very high circular velocity and speed. The occurrence of crush between differ blading systems. Thus, all should end up in fragments due to the existence of cutting. That are the reason why not more than one fan is too connected with one another. The bamboo solar cells can cut steel and plastic, at this moment, steel and plastic also can cut through the bamboo stems too whereby the presence of circular rotational forces are not to be negligible. The ascending magnitude of circular forces must be applied to the system where the centre point of each systems is ensured to be stable and not loose. It seems ridiculous but it has happened before in this world already. Heard before also the existence of circular laser-cutting and circular water-mode cutting. Air-cutting is also infamous nowadays. This is why bamboo solar cells blades had competitors to be analyzed and figured out. The blades of the bamboo solar cells are to be thinner instead of thicker to indicate the ability of cutting due to exertion of pressure as area involved are in descending orders. Volume, dimension and geometry are dependent on the area factor involved.

Sunlight contains photons and it is free renewable energy. Bamboo will undergo photosynthesis to convert combination water and carbon dioxide gas to the combination of glucose and oxygen gas under the circumstances of ultraviolet radiation. There is presence of substrate and enzyme where the photosynthesis process gets to be forwarded and vice versa. The extraction of the bamboo solar films accompanied with the activated enzymes and substrates are to be one of the tougher challenges in

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this research since enzymes and substrates will change characteristics and deform where the true equilibrium state is disturbed due to overhigh temperature condition. To avoid this unwanted deformation, try to rotate the entire bamboo solar cells blades with the speed and velocity slightly equal to or greater than the speed of light, fire, supersonic system and the scrolls go on. It cannot be decreased for these values. The biodegradable bamboo won't die and it is difficult to decompose under this kind of truely high-speed and velocity rotation since biodegradable humans also won't die when they are rotated through amazing high-speed and velocity circular rotational wheelbarrows for festival purposes. They just feel dizzy but they won't get old, experience unintended aging and maintain the equilibrium performance of young as long as they are residing forever inside this rotational system. Generally, this kind of rotation won't cause you to faint out. This is why biodegradable humans and bamboo solar cells will **declare "goodbye" to this universe when they are stationary, seldom exercise and lazy to move except** they and the bamboo solar cells blades enter these kinds of rotational circular systems. This is also why the earth planetary system rotated and pivoted in the axis of rotation. If the earth pivoted and rotated in the multiple circular motion with the greatest speed and velocity of achievement where one is by itself and one is circulating the solar system of the universe. The earth will just finish the circular motion in very very short interval of duration which must lesser than one seconds until until it is too fast.

When the bamboo blades are to be overheated under heat and burning sensation in stagnant conditions where no motion occurred. Then, the physical states conversion from solid to aqueous to gaseous. To avert the change of physical states of bamboo solar cells , the key here is to rotate and pivot through it in one rotational and circular motion. The triggered awesome bamboo solar cells will cut through the fire blasts and flames.

Then, the worrisome troubles for the weak points of the bamboo solar cells should be overcome**.** Hence, the stationary bamboo solar cells won't turn to particles fragments then aqueous and eventually to gaseous state. Bamboo solar cells will rotate inside **lava, sea** and any else medium in this earth and universe now as long co-alliding incidents among blades are to be reduced. During this prowess circular rotation motion, the surface of the bamboo solar cells cut through the water and air particles.

Try it with yourself through a compressor and vibrator machine. Feel it, learn it, know it. The reality is still the reality.

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With the knowledge capacities and in progress.
To deduce this literature review regarding the background of the bamboo solar cells, individual bamboo is the material which can be renewable and less contaminated. It also can be purchased legally from the market and mall. Thanks for sacrificing timers to study and read through this. Please feedback anytime before the deadline of submission of this literature reviews. Your comprehension are to be appreciated.

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CHAPTER 3
RESEARCH METHOD

Most of the information seized are from diversities of resources and references. Online journal, online browser, online television, newspaper, online articles, online magazines, online dictionary, online shopping and online manuscripts.

This already determined that there are various preferences and choices which elected by the researcher named "KANG CHUANG HSIEN". The resources and references arena governed by this researcher in surfing and picking the suitable information in order for the varsities idea blooming. Thus, it also eliminate the confined spectrum of brain in just choosing online journal and online articles as resources and sources of references where more critical and deep analysis and thinking can be performed.

Different blades crafted from different materials such as steel, plastic and bamboo are to be applied. The thin bamboo substrate is in the form of string which is more easier to be adjusted to different kinds of length which then lead to variety of circumferences radius to be determined during the **fantastic circular motion.** The thin bamboo string is more cheaper than the steel and plastic if considered in terms of quantity. The money value of **one** bamboo substrate is cheaper than steel and plastic. The bigger the circumference radius of the steel and plastic, the more expensive will be. Without this kind of generation of circular forces and circular motion, **wild grass and ferns can be trimmed tidy. Try this for mowing the wild grass and ferns during night season inside large football, soccer field, forestry field, agricultural field and the scripts keep on. Generally, the light is difficult to attain during night peak hour. However, the advanced-modifications of this trimmer prove the sustainable 24 hours solar light energy which already stored and tested during light time hours with the eco-environment blades application. The consideration of light energy to heat energy as should to activate the light bulb as it is already attached to the advanced-modified trimmer. Try to predict when the football and soccer field is out of light resources where trimmer labours which work for night shift event can be more best to perform this emergency action. Sometimes, the advanced-modified trimmer can be more handiful in managing camping ferns and wild grass during the setting up of the camping sites during night section. It is like more secure and more feasible to take on since it is quite light in weight and mass. That is why it is not imposture and malfunction. It actually save many mankind energy which will love and like to travel and work during night condition and phenomenon. Mankind no longer depending on fixed light resources just setting up in one fixed place for the particular purpose of trimming grass during night period. The advanced-modified trimmer itself already** ***have legs. This is what cause the curiosities in developing this***

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advanced-modified trimmer to become to reality in this world globally and internationally.

Please use it wisely ***as the busybodies always will go after the devil idea head and mind. Guess so ??***

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UPM UNIVERSITI PUTRA MALAYSIA	MAIN SERVICE POSTGRADUATE OFFICE OF DEPUTY VICE CHANCELLOR (ACADEMIC & INTERNATIONAL)
	NOTICE OF THESIS SUBMISSION PROCESS (GS-14a FORM)

PROCESS IN DETAIL

Responsibility	Flowchart	Details
	1.1 Start	
Student/ Supervisory Committee	1.2 Discuss with the Supervisory Committee the Intention to Submit Notice of Thesis Submission	1.2 Discuss with the Supervisory Committee the Intention to Submit Notice of Thesis Submission (PG/TSS/GS-14a) form. If agreed, inform to the Deputy Dean of the Faculty/School or Deputy Director of the Institute.
Coordinator/ PT/ PT (P/O) Faculty/School/ Institute	1.3 Ensure All Credit/Course Requirements are Met by Students	1.3 (a) Ensure all credit/course requirements are met by students: (i) total credits for Masters and PhD as follows: Intake | PhD | Masters First Semester 2019/2020 – Second Semester 2022/2023 | 9 | 6 First Semester 2023/2024 onwards | 6 | 6 (ii) passed Comprehensive Examination (for PhD) (iii) passed Research Methodology (iv) passed SPS5903/SPS6903 - Seminar (Research Proposal) (v) passed Malay Language Course (for international student) (b) Submit student's information to the SGS.
TD/PT/ PT (P/O) SGS	1.4 Check the Required Information Before Opening the System	1.4 Check the required information and inform the iDEC to open the system.
Student	1.5 Download the Notice of Thesis Submission (PG/TSS/GS-14a) Form Through Student Portal and Submit to the Faculty/School/Institute	1.5 Once the system opens, download the Notice of Thesis Submission (PG/TSS/GS-14a) form through student portal. Obtain the signature of Supervisory Committee members and submit the form to the Deputy Dean of the Faculty/School or Deputy Director of the Institute office with the following documents: (a) Abstract/Summary of Research; and (b) Table of Content
Coordinator/ PT/ PT (P/O) Faculty/School/ Institute	1.6 Receive Notice of Thesis Submission Form	1.6 (a) Receive completed Notice of Thesis Submission (PG/TSS/GS-14a) form from student and verify information received. (b) Start the nomination process for JKPPT members once the form PG/TSS/GS14a is received from the student. (c) Complete information regarding nomination proposal of JKPPT members in i-GIMS and print Nomination of Thesis Examination Committee (PG/TSS/GS-14b) form. Notes: • Information can only be uploaded once the Chairman of Supervisory Committee has endorsed the PG/TSS/GS-14a form in i-GIMS and student's status is active. (d) Forward the proposed list of the JKPPT members to SGS using the PG/TSS/GS-14b form, along with the completed external examiner's curriculum vitae. This should be done within 60 days of receiving the PG/TSS/GS-14 form from the students.
PT/ PT (P/O) Faculty/School/ Institute	A	

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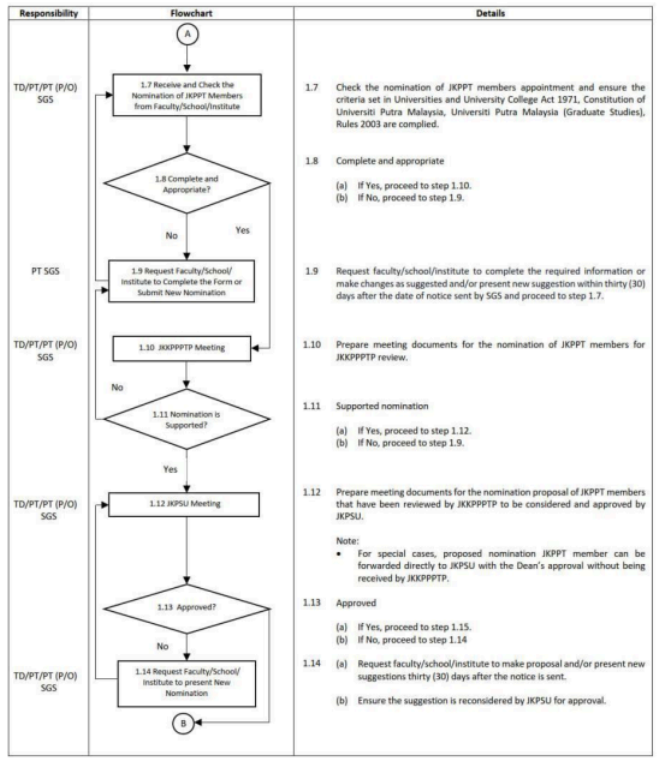
OFFICE OF DEPUTY VICE CHANCELLOR (ACADEMIC & INTERNATIONAL)

NOTICE OF THESIS SUBMISSION PROCESS (GS-14a FORM)


Responsibility
Flowchart
Details
A
TD/PT/PT (P/O) SGS
1.7 Receive and Check the Nomination of JKPPT Members from Faculty/School/Institute
1.8 Complete and Appropriate?
No
Yes
PT SGS
1.9 Request Faculty/School/ Institute to Complete the Form or Submit New Nomination
TD/PT/PT (P/O) SGS
1.10 JKKPPPTP Meeting
No
1.11 Nomination is Supported?
Yes
TD/PT/PT (P/O) SGS
1.12 JKPSU Meeting
1.13 Approved?
No
TD/PT/PT (P/O) SGS
1.14 Request Faculty/School/ Institute to present New Nomination
B
1.7 Check the nomination of JKPPT members appointment and ensure the criteria set in Universities and University College Act 1971, Constitution of Universiti Putra Malaysia, Universiti Putra Malaysia (Graduate Studies), Rules 2003 are complied.
1.8 Complete and appropriate
(a) If Yes, proceed to step 1.10.
(b) If No, proceed to step 1.9.
1.9 Request faculty/school/institute to complete the required information or make changes as suggested and/or present new suggestion within thirty (30) days after the date of notice sent by SGS and proceed to step 1.7.
1.10 Prepare meeting documents for the nomination of JKPPT members for JKKPPPTP review.
1.11 Supported nomination
(a) If Yes, proceed to step 1.12.
(b) If No, proceed to step 1.9.
1.12 Prepare meeting documents for the nomination proposal of JKPPT members that have been reviewed by JKKPPPTP to be considered and approved by JKPSU.
Note:
• For special cases, proposed nomination JKPPT member can be forwarded directly to JKPSU with the Dean's approval without being received by JKKPPPTP.
1.13 Approved
(a) If Yes, proceed to step 1.15.
(b) If No, proceed to step 1.14
1.14 (a) Request faculty/school/institute to make proposal and/or present new suggestions thirty (30) days after the notice is sent.
(b) Ensure the suggestion is reconsidered by JKPSU for approval.

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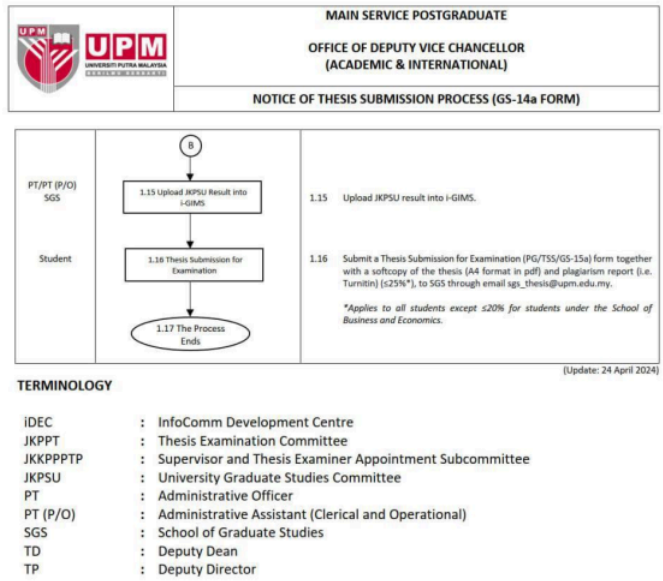

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OFFICE OF DEPUTY VICE CHANCELLOR
(ACADEMIC & INTERNATIONAL)

NOTICE OF THESIS SUBMISSION PROCESS (GS-14a FORM)

B
PT/PT (P/O) SGS
1.15 Upload JKPSU Result into i-GIMS
Student
1.16 Thesis Submission for Examination
1.17 The Process Ends
1.15 Upload JKPSU result into i-GIMS.
1.16 Submit a Thesis Submission for Examination (PG/TSS/GS-15a) form together with a softcopy of the thesis (A4 format in pdf) and plagiarism report (i.e. Turnitin) (≤25%*), to SGS through email sgs_thesis@upm.edu.my.
*Applies to all students except ≤20% for students under the School of Business and Economics.

(Update: 24 April 2024)

TERMINOLOGY

iDEC	:	InfoComm Development Centre
JKPPT	:	Thesis Examination Committee
JKKPPPTP	:	Supervisor and Thesis Examiner Appointment Subcommittee
JKPSU	:	University Graduate Studies Committee
PT	:	Administrative Officer
PT (P/O)	:	Administrative Assistant (Clerical and Operational)
SGS	:	School of Graduate Studies
TD	:	Deputy Dean
TP	:	Deputy Director

Figure 1: GS-14a SUBMIT NOTICE OF THESIS SUBMISSION form view, 2Dimensional appearance, 24 MARCH 2025(MALAYSIA TIMELINE)
Source: https://sgs.upm.edu.my/documentfile

From this figure 1, the short abbreviation for “iDEC”, “JKPPT”, “JKKPPPTP”, “JKPSU”, “PT”, “PT (P/O)”, “SGS”, “TD” and “TP” respectively identified as “InfoComm Development Centre”, “Thesis Examination Committee”, “Supervisor and Thesis Examiner Appointment Subcommittee”, “University Graduate Studies Committee”, “Administrative Officer”, “Administrative Assistant (Clerical and Operational), “School of Graduate Studies”, “Deputy Dean” and “Deputy Director”.

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PERSEDIAAN AUDIT DALAMAN & SIRIM
PEJABAT TIMBALAN NAIB CANSELOR (PENYELIDIKAN & INOVASI)
SISTEM PENGURUSAN KUALITI (QMS) ISO 9001:2015
TAHUN 2020

TANGGUNGJAWAB AUDITI

DOs	***DONTs***
1. Fahami dan dalami proses kerja, prosedur, garis panduan, araha kerja, SOP -masing – masing - Auditi adalah staf yang paling mahir di dalam proses masing-masing berbanding auditor.	1. Jangan lari apabila melihat Juruaudit ...jangan panik.
2. Dapatkan kepastian dan kefahaman mendalam bagi; - setiap langkah di dalam prosedur/ garis panduan/arahan kerja masing-masing – rujuk peneraju proses untuk kepastian, jika perlu - setiap fail yang perlu ada/diwujudkan – rujuk prosedur berkaitan - setiap borang yang perlu disimpan di dalam fail – rujuk prosedur	2. Jangan beri jawapan "saya tidak tahu", saya akan semak sebentar di bilik fail/komputer/etc.. – cari masa untuk fikirkan jawapan terbaik 3. Jangan menjawab soalan yang berkaitan dengan Bahagian/ Seksyen yang lain daripada Bahagian/Seksyen anda. 4. Jangan mengelirukan Juruaudit – rujuk prosedur /GP berkaitan secara online semasa audit, jika boleh
3. Dengar dengan baik soalan-soalan yang ditanya oleh Juruaudit.	5. Jangan berbohong kepada Juruaudit.
4. Jika tidak faham pada soalan, minta Juruaudit ulangi soalan.	6. Jangan mengatakan Juruaudit tidak betul – cuba beri penerangan berdasarkan fakta semula, kemungkinan penerangan secara verbal mengelirukan auditor
5. Beri jawapan sahaja kepada soalan yang ditanya.	7. Jangan panas baran pada Juruaudit.
6. Jawab soalan yang berkaitan dengan tugas anda sahaja dan **tunjukkan rekod apabila diminta**.	8. Jangan bertengkar dengan Juruaudit, minta penjelasan daripada Juruaudit. 9. Jangan membuang masa Juruaudit.- fail atau dokumen yang diminta perlu ditunjuk segera (carian rekod tidak melebihi 2 minit =)
7. Jika anda ragu-ragu dengan dokumen yang diminta, sila hubungi Peneraju Proses kerana kemungkinan rekod berkenaan disimpan pada Peneraju Proses dan **jangan jawab tiada**.	10. Jangan membuat tawaran untuk menunjukkan rekod. 11. Jangan memberitahu masalah dalaman Pusat Tanggungjawab.

Timbalan Penyelaras Audit Dalaman
Pejabat TNCPI

Figure 2: AUDIT - Do and Donts AD form view, Bahasa Malaysia version only, 25 MARCH 2025(MALAYSIA TIMELINE)
Source: https://sciencepark.upm.edu.my/faildokumen?L=en

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To emphasize more about the accreditation by Putra Science Park (PSP), the above figure is about the quality management system. This kind of validation is from the year of 2015. The preparation about internal audit and "SIRIM" by the Office of Deputy Vice-Chancellor and it is associated with research and innovation. "SIRIM" means Standard and Industrial Research Institute of Malaysia. It delivier some tips in scoring confidences from authorities of Putra Science Park (PSP).

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Apparatuses, materials and machines:

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WAN TE XING SDN BHD 202401019083
No.28, Jalan Bukit 2, Seri Alam, Masai,
Johor.

ORDER RECEIPT

Customer Name: KANGCHUANGHSIEN

Customer Address: 26 , 26, JALAN BERINGIN, VILLA KRISTAL HEIGHTS, 68100 BATU CAVES, SELANGOR, Gombak, 68100, Selangor

Receipt Number: 250325G8SQG9YS

Receipt Date: 26/03/2025

Order SN: 250325G8SQG9YS

Order Paid Date: 25/03/2025

Payment Method: SPayLater

Order Details

No.	Product	Variation	Net Product Price	Qty	Subtotal
1	Solar Emergency LED Light Bulb Portable Lamp for Camping, Rechargeable Night Market Lampu 可充电 Product price shown is exclusive of the following protection services: - Program Servis Penjagaan Produk @ 0.38 x 3	300W	-	3	-
			3-1%		**53.43**

Subtotal **RM 53.43**
Total Quantity (Active) 3 items

Merchandise Subtotal	53.43
Product Protection Subtotal	1.14
Shipping Fee	3.60
Shipping Fee SST	0.22
Shopee Voucher Applied	-8.02
Redeemed 1135 Shopee Coins	-11.35
Total Paid	**RM 39.02**

For service tax on shipping fee purposes:

Total exclusive of service tax	3.60
Service tax on shipping fee (6%)	0.22
Total inclusive of service tax	**3.82**

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Continue to next page

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WAN TE XING SDN BHD 202401019083
No.28, Jalan Bukit 2, Seri Alam, Masai,
Johor.

ORDER RECEIPT

Note This document is issued by Shopee Mobile Malaysia Sdn Bhd (Business address: Level 25, Menara Southpoint, Mid Valley City, Lingkaran Syed Putra, 59200 Kuala Lumpur; LVG Registration No. 2302010004; SST Registration No. W10-1808-32001158) for the purposes of sales tax on low value goods under Sales Tax Act 2018 and service tax on delivery fees under Service Tax Act 2018. The actual contract for sale of product(s) is directly between Buyer and Seller and Shopee is not a party to that or any other contract between Buyer and Seller and accepts no obligations in connection with any such contract. For more information, please refer to Shopee's Terms of Service at https://help.shopee.com.my/portal/article/77215.

2 of 2
End of receipt

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(Front view of the Solar plycrystalline Panel with To Micro Type-C wire)

(Back view, Solar plycrystalline Panel
Solar Module Types: 012WP
Maximum Power: 1.2W
Maximum Electrical Voltage: 6V to 9V
Maximum Electrical Current: 0.13A to 0.2A
Volume of Solar plycrystalline Panel :
(84× 130 ×10)mm)

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(Portable Rechargeable Lamb with “POWER” button of three modes)

(USB 2.0 and 3.0 To Micro Type-C wire)

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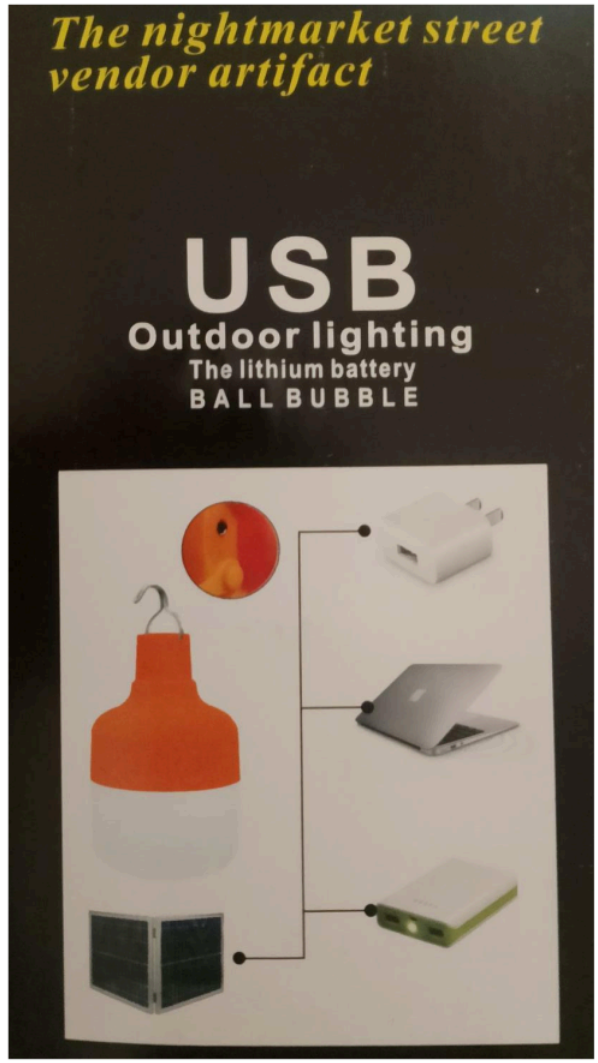

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Figure 3: Solar Emergency LED Light Bulb Portable Lamp, Rechargable Night (×3quantitiy), Shopee product, 26 MARCH 2025 (MALAYSIA TIMELINE)
Source: https://www.shopee.com.my

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BUZZTECH DISTRIBUTORS SDN BHD 202101000665
NO.20,25 Lorong Haji Abdul Manan 1A/KU8, Kawasan Perindustrian Meru Selatan,

ORDER RECEIPT

Customer Name: KANGCHUANGHSIEN

Customer Address: 26 , 26, JALAN BERINGIN, VILLA KRISTAL HEIGHTS, 68100 BATU CAVES, SELANGOR, Gombak, 68100, Selangor

Receipt Number: 250325GTCHKW93

Receipt Date: 27/03/2025

Order SN: 250325GTCHKW93

Order Paid Date: 25/03/2025

Payment Method: SPayLater

Order Details

No.	Product	Variation	Net Product Price	Qty	Subtotal
1	BuzzTech 1800W 388V Cordless Grass Trimmer Mesin Rumput Household Grass Cutter Electric Lawn Mower P	88V- RED	87.20	1	87.20

Subtotal **RM 87.20**
Total Quantity (Active) 1 items

Merchandise Subtotal	87.20
Shipping Fee	7.00
Shipping Fee SST	0.42
Shopee Voucher Applied	-15.00
Shop Voucher Applied	-7.00
Redeemed 442 Shopee Coins	-4.42
Total Paid	**RM 68.20**

For service tax on shipping fee purposes:

Total exclusive of service tax	7.00
Service tax on shipping fee (6%)	0.42
Total inclusive of service tax	**7.42**

Note This document is issued by Shopee Mobile Malaysia Sdn Bhd (Business address: Level 25, Menara Southpoint, Mid Valley City, Lingkaran Syed Putra, 59200 Kuala Lumpur; LVG Registration No. 2302010004; SST Registration No. W10-1808-32001158) for the purposes of

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BUZZTECH DISTRIBUTORS SDN BHD 202101000665 ORDER RECEIPT
NO.20,25 Lorong Haji Abdul Manan 1A/KU8, Kawasan Perindustrian Meru Selatan,

sales tax on low value goods under Sales Tax Act 2018 and service tax on delivery fees under Service Tax Act 2018. The actual contract for sale of product(s) is directly between Buyer and Seller and Shopee is not a party to that or any other contract between Buyer and Seller and accepts no obligations in connection with any such contract. For more information, please refer to Shopee's Terms of Service at https://help.shopee.com.my/portal/article/77215.

2 of 2
End of receipt

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(Left and Right view of the 88V electrical capsule storage for battery string trimmer, Vasily Lithium, under “FC”,it need to manage properly and not simply to any garbage bin, it is recycled but not direct exposed to “explosive and fire substances”)

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(Upper view of the 88V electrical capsule storage for battery string trimmer, Vasily Lithium, under “FC” with cathode and anode logo)

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(Front view of the 88V electrical capsule storage for battery string trimmer, Vasily Lithium, under “FC”)

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(Back view of the 88V electrical capsule storage for battery string trimmer, Vasily Lithium, under “FC”)

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(Model : TZ-C03AE
Input: 100V-240V 50-60HZ
Output: 21V 1000mA
Under “RoHS” of the China
Battery Charger)

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(Front view of the holder, it is the “head” of the rod)

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(Right view of the holder where the 88V electrical capsule storage for battery string trimmer, Vasily Lithium, under “FC”,it need to manage properly and not simply to any garbage bin, it is recycled but not direct exposed to “explosive and fire substances” is inputted to, it is the “head” of the rod, there is no sharp arrow sign on the right)

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(Left view of the holder where the 88V electrical capsule storage for battery string trimmer, Vasily Lithium, under “FC”,it need to manage properly and not simply to any garbage bin, it is recycled but not direct exposed to “explosive and fire substances” is inputted to, it is the “head” of the rod, there is sharp arrow sign on the left)

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(Stabilizer for the the “head” of the rod)

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(Down view of the holder where circular section inputted to, it is the "tail" of the rod)

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(Left or Right view of the holder with one “Down” Button, it is the “tail” of the rod)

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(Back view of the holder, there is one downward pusher ,it is the "tail" of the rod)

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(There is one orange cover with “arrow” sign with attached to the “tail” of the rod) (Not compulsory when safety head helmet is on) (It hinder the pathway and circulation trimming for bigger circumstances involved)

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(There is two triangular steel blades which attached to the “tail” of the rod, some components attracted to high-polarized magnetic field strength)

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(There is five plastic blades with one “L-shape” steel, screw and circular ring which attached to the “tail” of the rod, some components attracted to high-polarized magnetic field strength)

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(There is circular steel see-saw ring which attached to the "tail" of the rod, some components attracted to high-polarized magnetic field strength)

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Safety instructions and operation manual for charged electric mower
Before using this product, be sure to read through and fully understand this manual carefully before using, maintaining and maintaining the machine.
We reserve the right to change product specifications according to product improvement needs.

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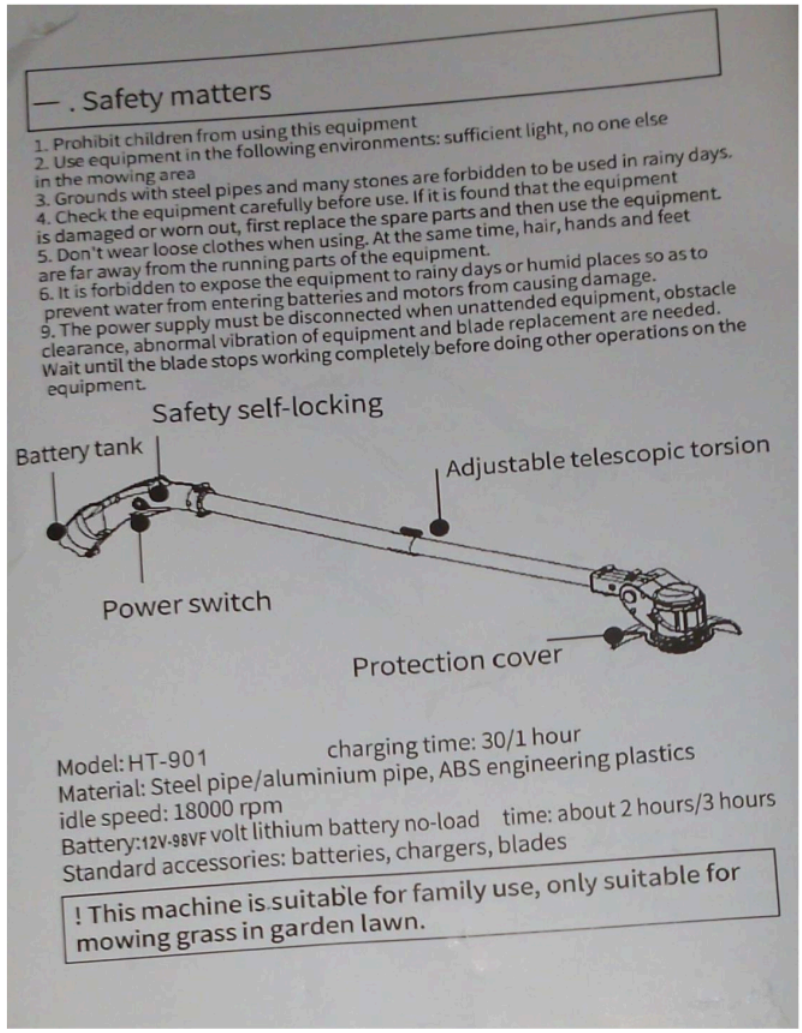

— . Safety matters

1. Prohibit children from using this equipment
2. Use equipment in the following environments: sufficient light, no one else in the mowing area
3. Grounds with steel pipes and many stones are forbidden to be used in rainy days.
4. Check the equipment carefully before use. If it is found that the equipment is damaged or worn out, first replace the spare parts and then use the equipment.
5. Don't wear loose clothes when using. At the same time, hair, hands and feet are far away from the running parts of the equipment.
6. It is forbidden to expose the equipment to rainy days or humid places so as to prevent water from entering batteries and motors from causing damage.
9. The power supply must be disconnected when unattended equipment, obstacle clearance, abnormal vibration of equipment and blade replacement are needed. Wait until the blade stops working completely before doing other operations on the equipment.

Model: HT-901 charging time: 30/1 hour
Material: Steel pipe/aluminium pipe, ABS engineering plastics
idle speed: 18000 rpm
Battery: 12V-98VF volt lithium battery no-load time: about 2 hours/3 hours
Standard accessories: batteries, chargers, blades

! This machine is suitable for family use, only suitable for mowing grass in garden lawn.

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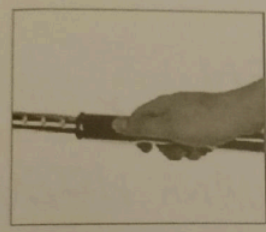
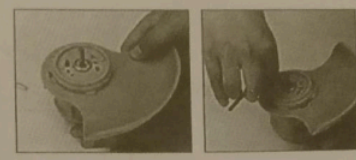
二. Operational Guidelines

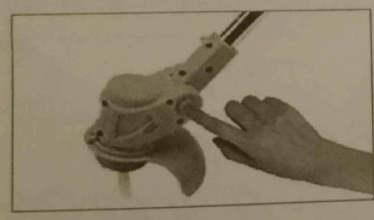
1. Push the button down to adjust the length of the telescopic rod.



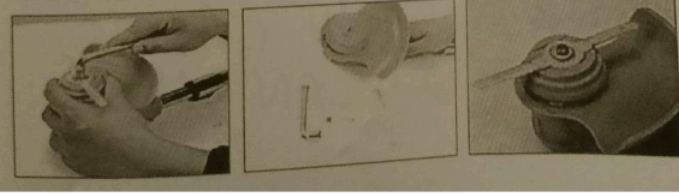


2. Sheath Installation

3. Angle adjustment of motor case head: press the circular button to adjust the shell angle:



4.Installation of blade: the slot used to fix the blade on the top of the lawn mower, insert the blade into the slot, align the screw hole, and turn into the slot.Screw can



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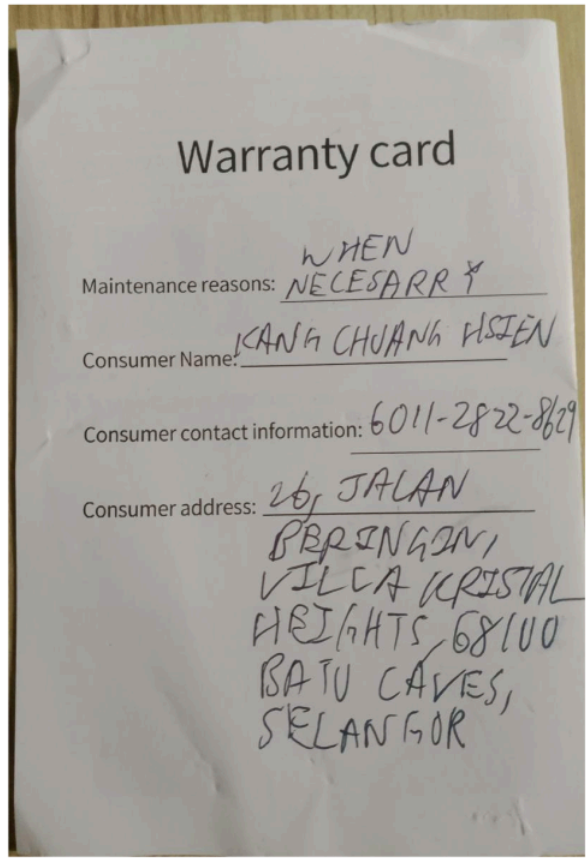
Warranty card
Maintenance reasons: WHEN NECESARRY
Consumer Name: KANG CHUANG HSIEN
Consumer contact information: 6011-2822-8629
Consumer address: 26, JALAN BERINGIN, VILLA KRISTAL HEIGHTS, 68100 BATU CAVES, SELANGOR

Figure 4: BuzzTech 1800W 388V Cordless Grass Trimmer Mesin Rumput Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED(×1quantitiy), Shopee product, 27 to 28 MARCH 2025 (MALAYSIA TIMELINE)
Source: https://www.shopee.com.my

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MY HAPII STORE 201503157256
16, Lorong Dua, Taman
Perlis,

ORDER RECEIPT

Customer Name: KANGCHUANGHSIEN

Customer Address: 26 , 26, JALAN BERINGIN, VILLA KRISTAL HEIGHTS, 68100 BATU CAVES, SELANGOR, Gombak, 68100, Selangor

Receipt Number: 250325GAWCAQFE

Receipt Date: 27/03/2025

Order SN: 250325GAWCAQFE

Order Paid Date: 25/03/2025

Payment Method: SPayLater

Order Details

No.	Product	Variation	Net Product Price	Qty	Subtotal
1	Bamboo String For Dumpling 端午粽绳 粽草 水草天然清香粽子绳（长95cm/150cm）包粽	A白 150cm 90-95条	4.59	5	22.95

Subtotal **RM 22.95**
Total Quantity (Active) 5 items

Merchandise Subtotal	22.95
Shipping Fee	6.30
Shipping Discount Subtotal	-5.00
Shipping Fee SST	0.08
Shopee Voucher Applied	-3.00
Redeemed 498 Shopee Coins	-4.98
Total Paid	**RM 16.35**

For service tax on shipping fee purposes:

Total exclusive of service tax	6.30
Service tax on shipping fee (6%)	0.08
Total inclusive of service tax	**6.38**

Note This document is issued by Shopee Mobile Malaysia Sdn Bhd (Business address: Level 25, Menara Southpoint, Mid Valley City, Lingkaran Syed Putra, 59200 Kuala Lumpur; LVG Registration No. 2302010004; SST Registration No. W10-1808-32001158) for the purposes of

1 of 2
Continue to next page

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MY HAPII STORE 201503157256
16, Lorong Dua, Taman
Perlis,

ORDER RECEIPT

sales tax on low value goods under Sales Tax Act 2018 and service tax on delivery fees under Service Tax Act 2018. The actual contract for sale of product(s) is directly between Buyer and Seller and Shopee is not a party to that or any other contract between Buyer and Seller and accepts no obligations in connection with any such contract. For more information, please refer to Shopee's Terms of Service at https://help.shopee.com.my/portal/article/77215.

2 of 2
End of receipt

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(Bamboo String which will be the thin bamboo blades
for this right for this research (×1quantitiy))

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Figure 5: Bamboo String which will be the thin bamboo blades for this right for this research (×5quantitiy), Shopee product, 27 to 28 MARCH 2025 (MALAYSIA TIMELINE)
Source: https://www.shopee.com.my

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RAINBOW ART E COMMERCE ENTERPRISE 201703169383
63, Jalan Kebudayaan 6, Taman Universiti, 81300
Skudai

ORDER RECEIPT

Customer Name: KANGCHUANGHSIEN

Customer Address: SPX Collection Point Mtm Mart - NO14 JALAN PINGGIRAN 1/1 PINGGIRAN BATU CAVES 68100 BATU CAVES SELANGOR, 68100

Receipt Number: 250405FAB876NT

Receipt Date: 11/04/2025

Order SN: 250405FAB876NT

Order Paid Date: 05/04/2025

Payment Method: ShopeePay Balance

Order Details

No.	Product	Variation	Net Product Price	Qty	Subtotal
1	Rattan Round Core/ Rotan Pulur/BCD ROTAN CORE/Teras Bulat Rotan	Rattan Core 3mm	2.97	4	11.88

Subtotal **RM 11.88**
Total Quantity (Active) 4 items

Merchandise Subtotal	11.88
Shipping Fee	2.50
Shipping Discount Subtotal	-2.50
Total Paid	**RM 11.88**

1 of 1
End of receipt

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Figure 6: Four group of bamboo rattans , Shopee product, 11APRIL 2025 (MALAYSIA TIMELINE)

Source: https://www.shopee.com.my

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MuWei Tool
NO.7004&7003, JALAN PBR38,KAWASAN PERINDUSTRIAN BUKIT RAMBAI, 75250 MELAKA.

ORDER RECEIPT

Customer Name: KANGCHUANGHSIEN

Customer Address: SPX Collection Point Mtm Mart - NO14 JALAN PINGGIRAN 1/1 PINGGIRAN BATU CAVES 68100 BATU CAVES SELANGOR, 68100

Receipt Number: 2503300WUX8HRY

Receipt Date: 05/04/2025

Order SN: 2503300WUX8HRY

Order Paid Date: 30/03/2025

Payment Method: SPayLater

Order Details

No.	Product	Variation	Net Product Price	Qty	Subtotal
1	Heavy Duty Metal Brush Cutter Nylon Plate Cutter Grass Cutting Disc Universal Aluminum Plate with 8	Metal Mower Head	2.90	1	2.90
2	Heavy Duty Metal Brush Cutter Nylon Plate Cutter Grass Cutting Disc Universal Aluminum Plate with 8	Metal Mower Head	-	2	-
			2-1% 4-2%		**5.74**

Subtotal **RM 8.64**
Total Quantity (Active) 3 items

Merchandise Subtotal	8.64
Shipping Fee	2.50
Shipping Discount Subtotal	-2.50
Total Paid	**RM 8.64**

1 of 1
End of receipt

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Figure 7: Four yellowish Nylon strings with the circular metal mowel plate for the "tail" of the rod for this research (×3quantitiy), Shopee product, 5APRIL 2025 (MALAYSIA TIMELINE)

Source: https://www.shopee.com.my

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SPX Shopee
SPXMY058897944404
Order Details
Ship By Date: 03-04-2025
Weight (kg): 0.48
Order ID: 2504015J0P2RBJ
Order Details (Courier)
BUYER SELF COLLECTION
Sender Details (Pengirim)
Name: IDCOM
Phone: 045822270
Address: LOT 1201 MUKIM 11,JALAN SUNGAI PUYUH, SUNGAI BAKAP
Sungai Jawi Penang
Malaysia
Postcode: 14200
KV1-BCV-c-Z
D-08-BT.42-O
68100
Recipient Details (Penerima)
Name: KANG CHUANG HSIEN
Address: CollectCo Pack 2 Go - Batu Caves No 21, Jalan SBC 7, Taman Sri Batu Caves, 68100 Batu Caves, Selangor 68100
Postcode: 68100
L - L
SPXMY058897944404
No : 93
CO
250402GVXTRO
No. SKU
1 ID5280
Rack
J-07-3B
Qty
1
Total quantity 1

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DECOREALM SDN BHD 202001036443
Lot 1201 Mukim 11, Jalan Sungai Puyuh, Sungai Bakap, Sungai Jawi

ORDER RECEIPT

Customer Name: KANG CHUANG HSIEN

Customer Address: CollectCo Pack 2 Go - Batu Caves - No 21, Jalan SBC 7, Taman Sri Batu Caves, 68100 Batu Caves, Selangor, 68100

Receipt Number: 2504015J0P2RBJ

Receipt Date: 05/04/2025

Order SN: 2504015J0P2RBJ

Order Paid Date: 01/04/2025

Payment Method: SPayLater

Order Details

No.	Product	Variation	Net Product Price	Qty	Subtotal
1	iDECO™ 10kg Kitchen Scale Household Baking Medicine Electronic Kitchen Scale Manufacturer Electron		7.00	1	7.00

Subtotal **RM 7.00**
Total Quantity (Active) 1 items

Merchandise Subtotal	7.00
Shipping Fee	2.50
Shipping Discount Subtotal	-2.50
Total Paid	**RM 7.00**

1 of 1
End of receipt

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(Electronic balance China-packaging with the coding of "SF-400" for this research (×1quantitiy))

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Electronic Kitchen scale
SPECIFICATION
Equipped with a high precision strain gauge sensor sys
LCD display
Capcity:□ 1Kg X 0.1g □ 2Kg X 0.1g
□ 3Kg X1g □ 5Kg X 1g □ 7Kg X 1g
□ 10Kg X 1g
Auto zero resetting/power off
Mode function(g/oz)
Over-load/Low battery indicator
Power:1.5V X 2 AAAbattery(included)
LONGLIFE BATTERY
SensorDisc
MADE IN CHINA

(SF-400 Electronic balance China-packaging with the equipment of high precision strain gauge system which is EXLUSIVE SensorDisc TECHSOLOGY, LONGLIFE BATTERY, Family, LCD display, auto zero resetting that is tare button, mode function, over-load, low battery indicator, on button, off button and (1.5V× 2)battery with "AAA"type)

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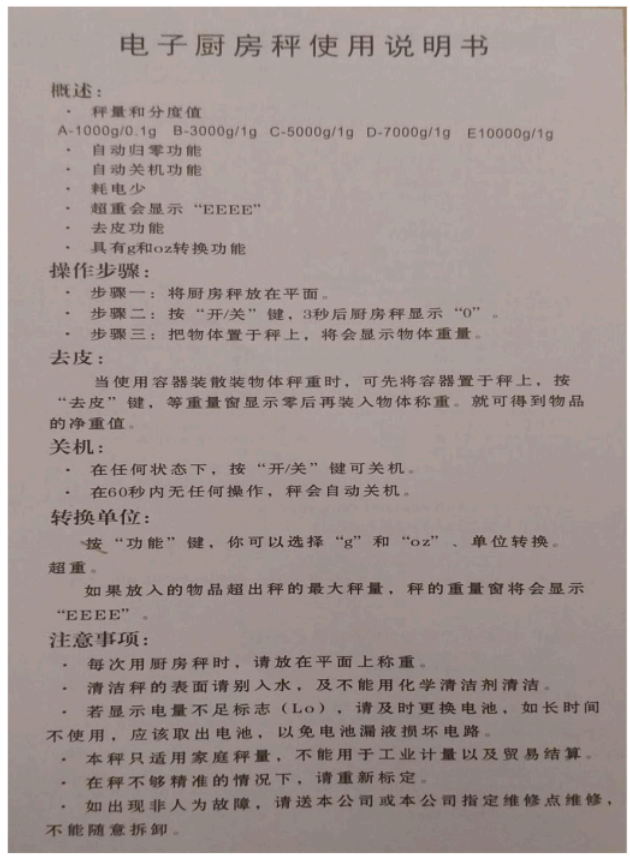

电子厨房秤使用说明书

概述：

- 秤量和分度值

A-1000g/0.1g B-3000g/1g C-5000g/1g D-7000g/1g E10000g/1g

- 自动归零功能
- 自动关机功能
- 耗电少
- 超重会显示“EEEE”
- 去皮功能
- 具有g和oz转换功能

操作步骤：

- 步骤一：将厨房秤放在平面。
- 步骤二：按“开/关”键，3秒后厨房秤显示“0”。
- 步骤三：把物体置于秤上，将会显示物体重量。

去皮：

当使用容器装散装物体秤重时，可先将容器置于秤上，按“去皮”键，等重量窗显示零后再装入物体称重。就可得到物品的净重值。

关机：

- 在任何状态下，按“开/关”键可关机。
- 在60秒内无任何操作，秤会自动关机。

转换单位：

按“功能”键，你可以选择“g”和“oz”、单位转换。

超重。

如果放入的物品超出秤的最大秤量，秤的重量窗将会显示“EEEE”。

注意事项：

- 每次用厨房秤时，请放在平面上称重。
- 清洁秤的表面请别入水，及不能用化学清洁剂清洁。
- 若显示电量不足标志（Lo），请及时更换电池，如长时间不使用，应该取出电池，以免电池漏液损坏电路。
- 本秤只适用家庭秤量，不能用于工业计量以及贸易结算。
- 在秤不够精准的情况下，请重新标定。
- 如出现非人为故障，请送本公司或本公司指定维修点维修，不能随意拆卸。

(SF-400 Electronic balance instruction manual in Chinese Simplified Version)

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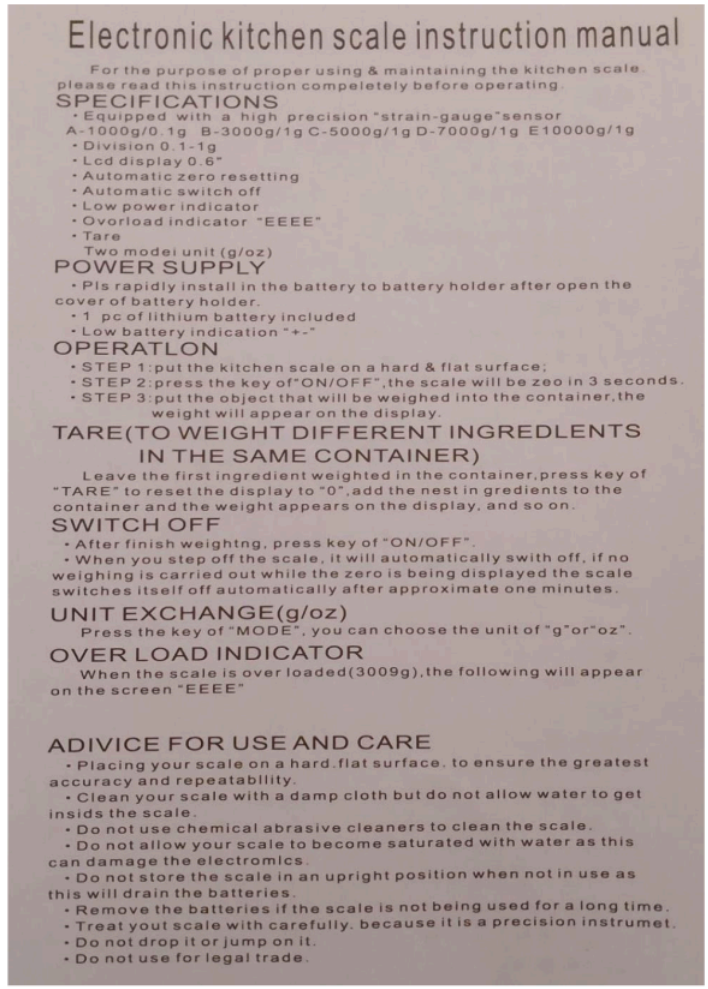

Electronic kitchen scale instruction manual

For the purpose of proper using & maintaining the kitchen scale. please read this instruction compeletely before operating.

SPECIFICATIONS

- Equipped with a high precision "strain-gauge"sensor A-1000g/0.1g B-3000g/1g C-5000g/1g D-7000g/1g E10000g/1g
- Division 0.1-1g
- Lcd display 0.6"
- Automatic zero resetting
- Automatic switch off
- Low power indicator
- Ovorload indicator "EEEE"
- Tare

Two modei unit (g/oz)

POWER SUPPLY

- Pls rapidly install in the battery to battery holder after open the cover of battery holder.
- 1 pc of lithium battery included
- Low battery indication "+-"

OPERATLON

- STEP 1:put the kitchen scale on a hard & flat surface;
- STEP 2:press the key of"ON/OFF",the scale will be zeo in 3 seconds.
- STEP 3:put the object that will be weighed into the container,the weight will appear on the display.

TARE(TO WEIGHT DIFFERENT INGREDLENTS IN THE SAME CONTAINER)

Leave the first ingredient weighted in the container,press key of "TARE" to reset the display to "0",add the nest in gredients to the container and the weight appears on the display, and so on.

SWITCH OFF

- After finish weightng, press key of "ON/OFF".
- When you step off the scale, it will automatically swith off, if no weighing is carried out while the zero is being displayed the scale switches itself off automatically after approximate one minutes.

UNIT EXCHANGE(g/oz)

Press the key of "MODE", you can choose the unit of "g"or"oz".

OVER LOAD INDICATOR

When the scale is over loaded(3009g),the following will appear on the screen "EEEE"

ADIVICE FOR USE AND CARE

- Placing your scale on a hard.flat surface. to ensure the greatest accuracy and repeatabllity.
- Clean your scale with a damp cloth but do not allow water to get insids the scale.
- Do not use chemical abrasive cleaners to clean the scale.
- Do not allow your scale to become saturated with water as this can damage the electromics.
- Do not store the scale in an upright position when not in use as this will drain the batteries.
- Remove the batteries if the scale is not being used for a long time.
- Treat yout scale with carefully. because it is a precision instrumet.
- Do not drop it or jump on it.
- Do not use for legal trade.

(SF-400 Electronic balance instruction manual in English Version)

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(Upper View of SF-400 Electronic Balance with the capacity notation of "10000g×1g/353oz×0.1oz" , on button, off button, mode button and tare button)

(Back View of SF-400 Electronic Balance with the digital scale informing that "Auto zero resetting, Auto power off, Mode functioning (g/oz) and (1.5V× 2)battery with "AAA"type)

Figure 8: iDECO™ electron-manufactured electronic balance (×1quantitiy), Shopee product, 5 APRIL 2025 (MALAYSIA TIMELINE)

Source: https://www.shopee.com.my

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(Four Alkaline Battery plus with the 0.0% recyclable MERCURY CADMIUM, cathode and anode with the "AAA"type, LR03, 1.5V)

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Figure 9: (Four Alkaline Battery which is made in China with the bar-coding of "9020174", "Jiaxing Mini-Moon Battery Co,Ltd.", "MR. D.I.Y TRADING SDN BHD" and "MC 201601039157(1210098-V)" (×4quantitiy), family member product, 5 APRIL 2025 (MALAYSIA TIMELINE)

Source: Supported from family members

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Figure 10: Engineering cloves, family member product, 5 APRIL 2025 (MALAYSIA TIMELINE)

Source: Supported from family members

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Figure 11: Shield coat for trimming grass, laboratory work and other relevant duties, family member product, 5 APRIL 2025 (MALAYSIA TIMELINE)
Source: Supported from university members

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Steps in solar electrical operator where bamboo substrate blades to be the alternatives to “steel and plastic blades”

1. The diameter of one circular steel see-saw ring , five plastic blades, two triangular steel blades, bamboo rattans and bamboo strings are to be measured respectively and recorded in one table.
2. It is notified that the diameter of one circular steel see-saw ring will be 15cm while for the plastic blade, triangular steel blade,nylon strings and bamboo strings are 14cm, 15cm, 44cm, 44cm and 44cm respectively.
3. The iDECO™ SF-400 electronic balance is activated by inserting two Alkaline Battery which is made in China with the bar-coding of “9020174”, “Jiaxing Mini-Moon Battery Co,Ltd.”, “MR. D.I.Y TRADING SDN BHD” and “MC-201601039157(1210098-V)” as displayed below:

Figure 12

4. One cardboard with the length of 21cm, width of 16cm and height of 0.1cm is compulsory to allocated above the activated iDECO™ SF-400 electronic balance after the it is switching on to prevent unwanted magnetic field interaction between metal of the surface of it with the weighted type of the consumed blade involved. It is 17g for this cardboard.

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Figure 13 (The mass of one cardboard)

5. The mass of the one circular steel see-saw ring is weighted with the electronic balance. It will be 110.0 g for one circular steel see-saw ring while for the plastic blade, triangular steel blade, nylon string, one circular metal mowel plate for the "tail" of the rod, bamboo rattans and bamboo string are 3.0g, 27.0g, 1.5g, 107.0g, 0.75g and 0.18g respectively. Extra proofs are given

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Figure 14(The mass of one plastic blade with the cardboard)

Figure 15 (The total mass of five group of bamboo strings and each of them with the length of 23.3cm, width of 0.1cm and height 0.1cm with the cardboard)

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Figure 16 (The total mass of FOUR of bamboo rattan and each of them with the length of 23.3cm, width of 0.2cm and height 0.2cm with the cardboard)

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Figure 17 (The total mass of four nylon strings and each of them with the length of 23.3cm, width of 0.2cm and height 0.2cm with the cardboard)

Figure 18 (The mass of one triangular steel blade with the cardboard)

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Figure 19 (The mass of one circular steel see-saw ring with the cardboard)

Figure 20 (The mass of one circular metal mowel plate for the "tail" of the rod with the cardboard)

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6. By following to the guidelines as being prepared in the proved figure, the circular steel see-saw ring is attached to the “tail” of the rod with the tightening of the “L-shape” steel.
7. One orange cover with “arrow” sign is attached to the “tail” of the rod.
8. Stabilizer for the the “head” of the rod is to be inserted too.
9. The 88V electrical capsule storage for battery string trimmer, Vasily Lithium, under “FC” is fully charged and inserted to the “head” part of the BuzzTech 1800W 388V Cordless Grass Trimmer Mesin Rumput Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED.
10. The Solar Emergency LED Light Bulb Portable Lamp for this section application, Rechargable Night will attached to the “head” part of the BuzzTech 1800W 388V Cordless Grass Trimmer Mesin Rumput Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED.
11. The entire BuzzTech 1800W 388V Cordless Grass Trimmer Mesin Rumput Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED plus the Solar Emergency LED Light Bulb Portable Lamp for this section application, Rechargable Night is switch on.
12. The power output for the entire BuzzTech 1800W 388V Cordless Grass Trimmer Mesin Rumput Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED and one circular steel see-saw ring plus the Solar Emergency LED Light Bulb Portable Lamp for this section application, Rechargable Night is recorded in excess table.
13. The efficiency for the entire BuzzTech 1800W 388V Cordless Grass Trimmer Mesin Rumput Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED and one circular steel see-saw ring plus the Solar Emergency LED Light Bulb Portable Lamp for this section application, Rechargable Night is calculated and recorded in extra table.
14. The graph of the power output for the entire BuzzTech 1800W 388V Cordless Grass Trimmer Mesin Rumput Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED and one circular steel see-saw ring plus the Solar Emergency LED Light Bulb Portable Lamp for this section application, Rechargable Night versus the mass of one circular steel see-saw ring is plotted. 15. For the bamboo material section, circular metal mowel plate is required to be applied.
16. Excess graph of comparison in percentage of minimum and maximum power output efficiency when different types of consumed blades are prepared too.
17. Step 1 to 16 is repeated by subsisting one circular steel see-saw ring with five plastic blades, two triangular steel blades, four yellowish nylon strings and bamboo strings.
18. Some extra features, evidences and safety purposes can be attained in the appendices and appendix section.

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CHAPTER 4
ANALYSIS AND FINDINGS

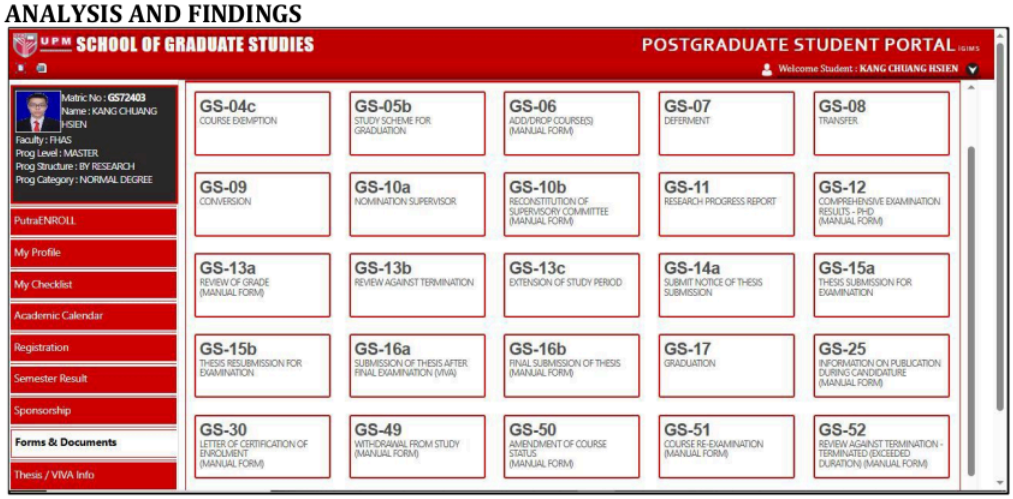
UPM SCHOOL OF GRADUATE STUDIES
POSTGRADUATE STUDENT PORTAL
Welcome Student : KANG CHUANG HSIEN
Matric No : GS72403
Name : KANG CHUANG HSIEN
Faculty : FHAS
Prog Level : MASTER
Prog Structure : BY RESEARCH
Prog Category : NORMAL DEGREE
PutraENROLL
My Profile
My Checklist
Academic Calendar
Registration
Semester Result
Sponsorship
Forms & Documents
Thesis / VIVA Info
GS-04c COURSE EXEMPTION
GS-05b STUDY SCHEME FOR GRADUATION
GS-06 ADD/DROP COURSE(S) (MANUAL FORM)
GS-07 DEFERMENT
GS-08 TRANSFER
GS-09 CONVERSION
GS-10a NOMINATION SUPERVISOR
GS-10b RECONSTITUTION OF SUPERVISORY COMMITTEE (MANUAL FORM)
GS-11 RESEARCH PROGRESS REPORT
GS-12 COMPREHENSIVE EXAMINATION RESULTS - PHD (MANUAL FORM)
GS-13a REVIEW OF GRADE (MANUAL FORM)
GS-13b REVIEW AGAINST TERMINATION
GS-13c EXTENSION OF STUDY PERIOD
GS-14a SUBMIT NOTICE OF THESIS SUBMISSION
GS-15a THESIS SUBMISSION FOR EXAMINATION
GS-15b THESIS RESUBMISSION FOR EXAMINATION
GS-16a SUBMISSION OF THESIS AFTER FINAL EXAMINATION (VIVA)
GS-16b FINAL SUBMISSION OF THESIS (MANUAL FORM)
GS-17 GRADUATION
GS-25 INFORMATION ON PUBLICATION DURING CANDIDATURE (MANUAL FORM)
GS-30 LETTER OF CERTIFICATION OF ENROLMENT (MANUAL FORM)
GS-49 WITHDRAWAL FROM STUDY (MANUAL FORM)
GS-50 AMENDMENT OF COURSE STATUS (MANUAL FORM)
GS-51 COURSE RE-EXAMINATION (MANUAL FORM)
GS-52 REVIEW AGAINST TERMINATION - TERMINATED (EXCEEDED DURATION) (MANUAL FORM)

Figure 21: Postgraduate Student Portal for School of Graduate Studies, 2Dimensional appearance, 23MARCH2025 (MALAYSIA TIMELINE)

Source:
http://sgsportal.upm.edu.my:8080/sgsportal/page_pageid175,39427.jsp?token=55B20A83C29C5D2B1D7C86D4ECD7E6F61C7FC8AF4EBFD152C525F475FF7585F9162AD45C2541D58579CFFFABEEE8B96B2A93D29746AC4368B3F6B669900404C03AD105175F75F771DB55B37B35CB6887E9AD89B8C49D4F98A49276CEEFCB45819FF75F291AEB19F5C6EE7E03F5F3812525A9D4071E1A449CA1584E15A614842FA54B71DE8150F442FF68B662555C87741DF61226A8FA5C981AEF2699FCEBB5AE660E67B8D4207A4F99AEC0F854D7B3BADF84F6E30EA5BD97D7DBDE6978555CEE9A5F70810D19BD9B82BDCE869B9FD2DE650CEDD52D123A5C38E1CA7109BAC6B870FCCA3B9C364C795CC1C603344D693AD2B6E0D318789826FE605F42B61EB6C77542A52710453119&domain=SGS

From the figure 19 above, all the essential forms and documents to be activated via physically and online will be “GS-05b STUDY SCHEME FOR GRADUATION”, “GS-10a NOMINATION SUPERVISOR”, “GS-11 RESEARCH PROGRESS REPORT”, “GS-14a SUBMIT NOTICE OF THESIS SUBMISSION”, “GS-15a THESIS SUBMISSION FOR EXAMINATION”, “GS-16a SUBMISSION OF FINAL EXAMINATION AFTER VIVA”, “GS-16b FINAL SUBMISSION OF THESIS”, “GS-17 GRADUATION”, “GS-25 INFORMATION ON PUBLICATION DURING CANDIDATURE”, “GS-30 LETTER OF CERTIFICATION OF ENROLLMENT” and “GS-50

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AMENDMENT OF COURSE STATUS" during the continued research status. The name of the student and his faculty which existed in this online student portal will be "KANG CHUANG HSIEN" and "FHAS" respectively. The matric number of this candidature will be "GS72403". "FHAS" means Faculty of Forestry and Environment. Many short abbreviation can be summarized as "FHAS" with different meaning. That is why clarification is to be justified here.

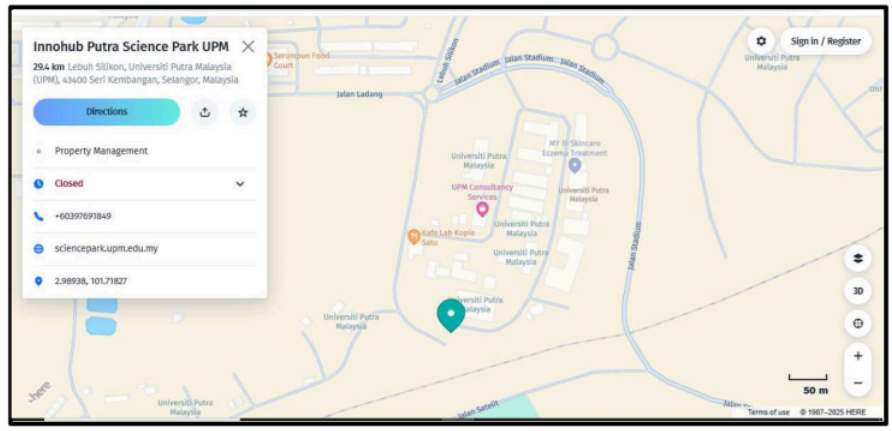

Figure 22: Satellit short view, 2-Dimensional appearance, 21 MARCH 2025(MALAYSIA TIMELINE)

Source: https://wego.here.com/

Based on figure 20, this is short view of the map indicating the Innohub Putra Science Park UPM. The official internet cache link will be "sciencepark.upm.edu.my". The scaling zoom here will be 50m. The Cartesian coordinate will be (2.98938,101.71827). Examples of highlighted routes will be "Jalan Ladang", "Lebuh silikon", "Jalan Stadium" and "Jalan Satelit". The physical address can be annotated as "Innohub Putra Science Park UPM, Lebuh Silikon, Universiti Putra Malaysia (UPM), 43400, Seri Kembangan, Selangor"

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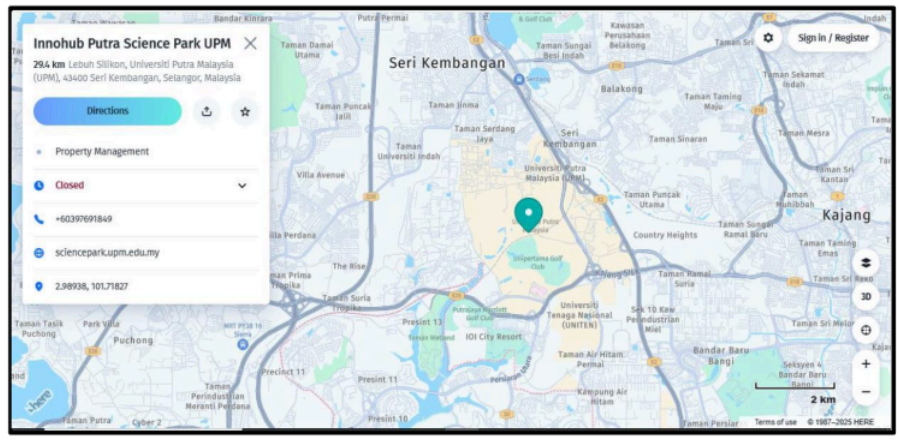

Figure 23: Satellite far view, 2-Dimensional appearance, 21 MARCH 2025(MALAYSIA TIMELINE)

Source: https://wego.here.com/

Based on figure 21, this is far scoping. The scaling zoom here will be 2km. It can be notified that "Innohub Putra Science Park UPM" is inside region of '"Seri Kembangan". The nearby places which can be speculated will be "Unipertama Golf Club". The scaling zoom for figure 21 is 40times of figure 20.

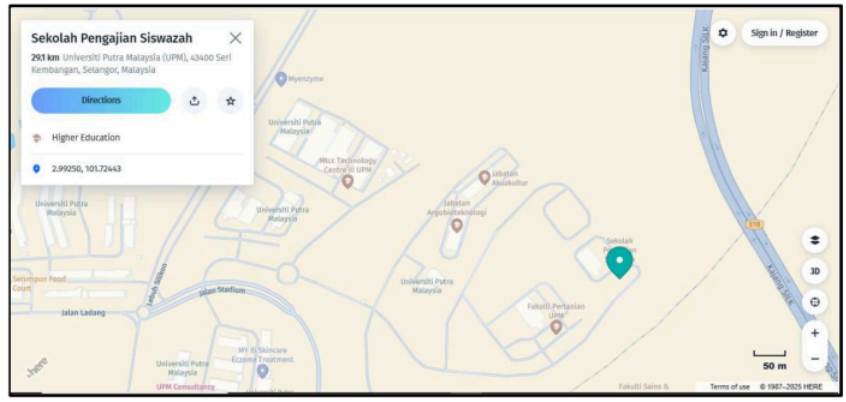

Figure 24: Satellite short view, 2-Dimensional appearance, 26 MARCH 2025(MALAYSIA TIMELINE)

Source: https://wego.here.com/

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By alerted to this figure 22, the position and coordinate of School of Graduate Studies is more near to Faculty of Agriculture UPM, Department of Aquaculture UPM and Department of Argobiotechnology UPM. The scaling zoom here will be 50m. The Cartesian coordinate will be (2.99250,101.72443). Examples of highlighted routes will be “Jalan Ladang”, “Lebuh silikon”, “Jalan Stadium” and “Jalan Satelit”. The official browser-online address for “SGS” will be “https://sgs.upm.edu.my/”. This is one of the crucial administrative school in connecting administrative documents among private and government faculties, institutes, libraries, stadiums, centers, departments, halls and so on.

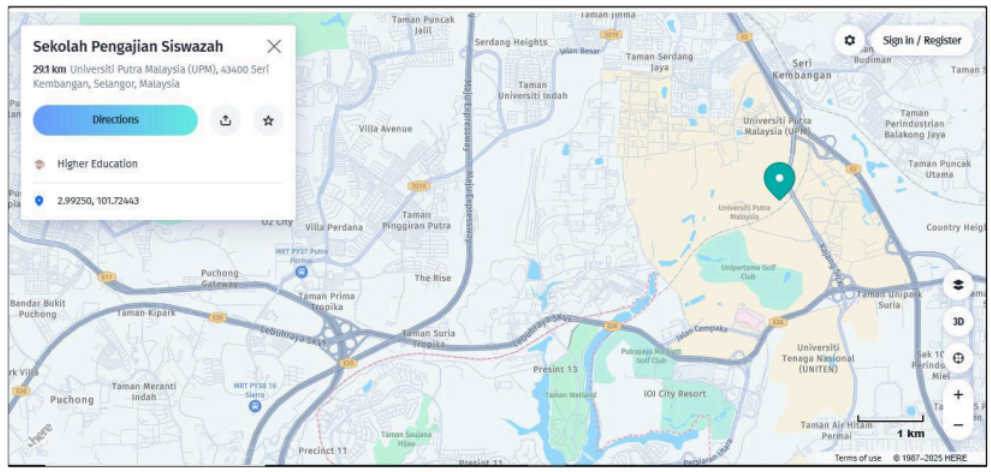

Figure 25: Satellite far view, 2-Dimensional appearance, 26 MARCH 2025(MALAYSIA TIMELINE)

Source: https://wego.here.com/

By judging on this figure 23, it is far scoping. The scaling zoom here will be 1km. It can be counted that “School of Graduate Studies” is inside region of “Seri Kembangan”. The nearby places which can be spotted will be “Taman Unipark Suria”. The scaling zoom for figure 23 is 20times of figure 22.

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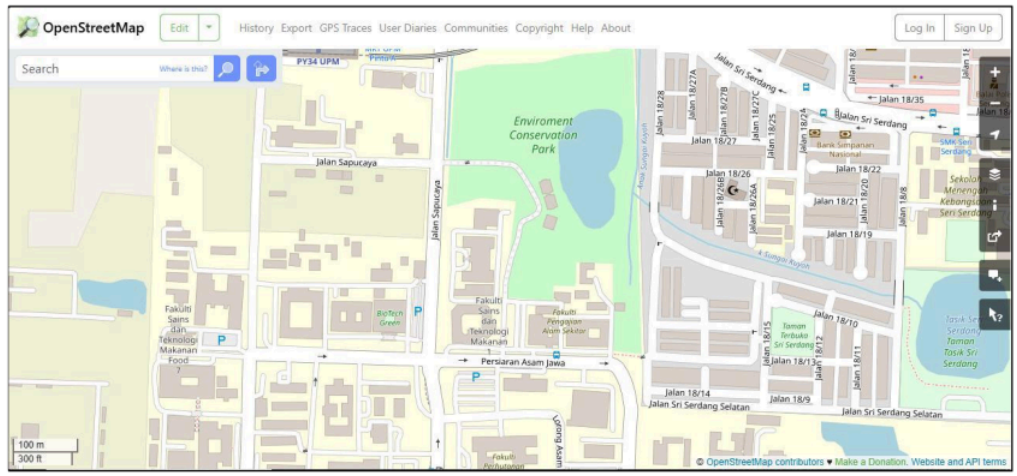

Figure 26: Satellite moderate view, 2-Dimensional appearance, 26 MARCH 2025(MALAYSIA TIMELINE)

Source: https://www.openstreetmap.org/#map=17/3.005624/101.708014

By prevailing on this figure 24, it is far scoping. The scaling zoom here will be 100m. It can be counted that "Faculty of Forestry and Environment, Complexes A and B" is inside region of "Seri Kembangan". The Bahasa Malaysia version for "Faculty of Forestry and Environment, Complexes A" will be "Fakulti Perhutanan". The Bahasa Malaysia version for "Faculty of Forestry and Environment, Complexes B" will be "Fakulti Pengajian Alam Sekitar" as being registered in the system of the OpenStreetMap. The snapped road tags here will be "Jalan Sapucaya", "Persiaran Asam Jawa", "Lorong Asam Jawa" and "Jalan Sri Serdang Selatan". The Faculty of Food Science and Technology will also possess alternative Bahasa Malaysia translation pronouced as "Fakulti Sains dan Teknologi Makanan". Behind the "Fakulti Pengajian Alam Sekitar" will be the allocation of "Environment Conservation Park". The approximate relevant Cartesian coordinate for this map will be (3.0005624,101.708014).

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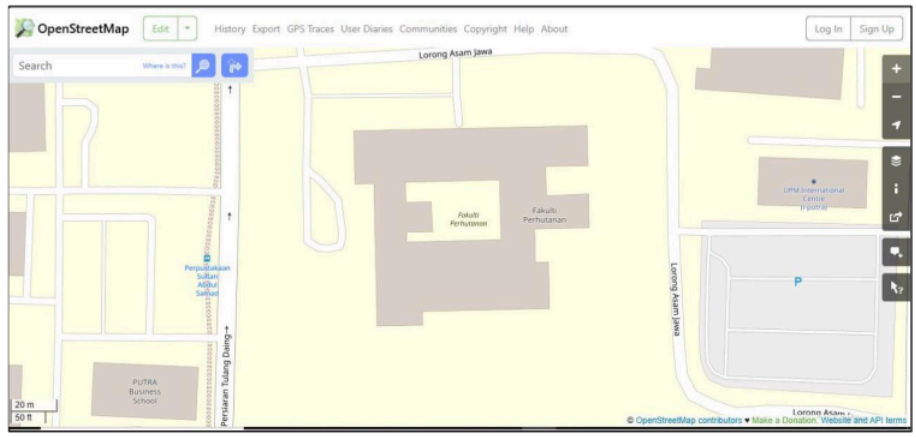

Figure 27: Satellite short view, 2-Dimensional appearance, 26 MARCH 2025(MALAYSIA TIMELINE)

Source: https://www.openstreetmap.org/#map=19/3.002776/101.707899

With the visualization assistance for figure 25, the Cartesian coordinate of the "Fakulti Perhutanan" will be (3.002776,101.707899). The paths which can be seek over here will be "Lorong Asam Jawa" and "Persiaran Tulang Daing". The neighbours of the "Fakulti Perhutanan" will be "PUTRA Business School", "UPM International Centre (i-putra) and "Perpustakaan Sultan Abdul Samad". The English classification for "Perpustakaan Sultan Abdul Samad" will be "Library of Sultan Abdul Samad". The researcher named "KANG CHUANG HSIEN" will had discussions with privileged person named "Norul Hisham Bin Hamid" and linked members for progressing this research paper. However, the main advisor can be altered according to time change situation and condition.

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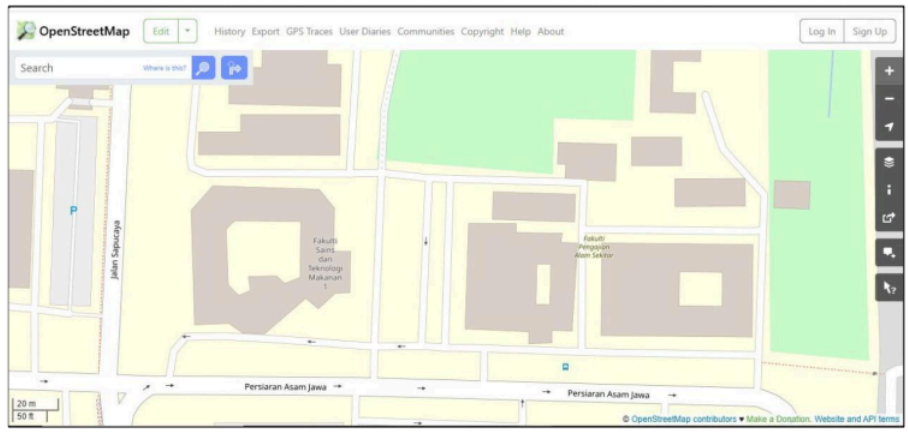

Figure 28: Satellite short view, 2-Dimensional appearance, 26 MARCH 2025(MALAYSIA TIMELINE)

Source: https://www.openstreetmap.org/#map=19/3.004801/101.708234

With the addition of Global Positioning System (GPS) for figure 26, the mapping for "Fakulti Pengajian Alam Sekitar" can be seen. The Cartesian coordinate for this faculty will be (3.004801,101.708234). The scaling measuration for this map will be "20m" which is five times smaller than the figure 24. There are some conversations with certain staffs such as "Surina Binti Kamarul Zaman", "Aisyah Binti Abu Bakar" and much more to consider. Such these conversations are in-negligible since there are really pushing the progress of this research paper too.

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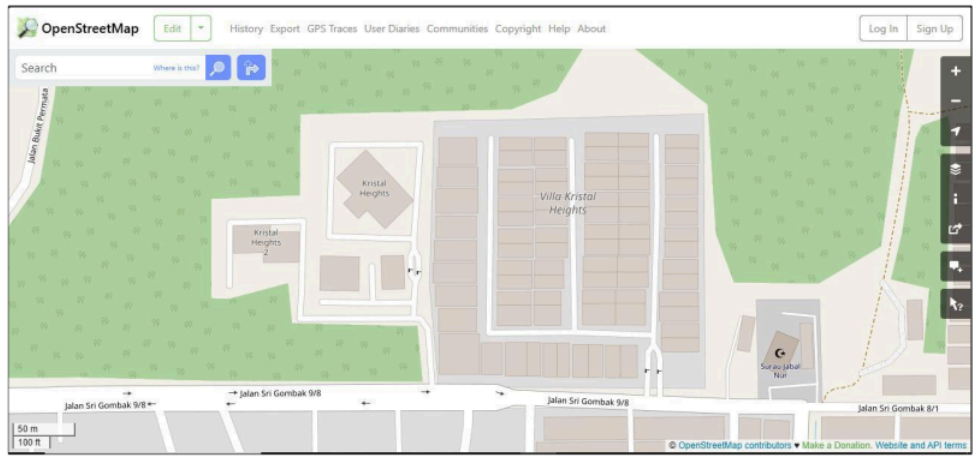

Figure 29: Satellite short view, 2-Dimensional appearance, 26 MARCH 2025(MALAYSIA TIMELINE)

Source: https://www.openstreetmap.org/#map=18/3.253219/101.704817

The above figure 27 is about the map where the researcher named "KANG CHUANG HSIEN" reside in. It is "Villa Kristal Heights" with the Cartesian coordinate of (3.253219,101.704817). The trekking which communicate to "Villa Kristal Heights" will be "Jalan Bukit Permata", "Jalan Sri Gombak 9/8" and "Jalan Sri Gombak 8/1". The nearest place to "Villa Kristal Heights"which can be concerned here will be "Surau Jabal Nur".

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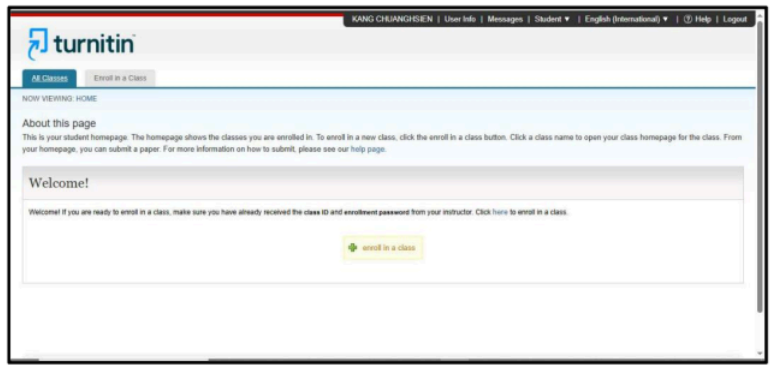
KANG CHUANGHSIEN | User Info | Messages | Student ▾ | English (International) ▾ | Help | Logout
turnitin
All Classes
Enroll in a Class
NOW VIEWING: HOME
About this page
This is your student homepage. The homepage shows the classes you are enrolled in. To enroll in a new class, click the enroll in a class button. Click a class name to open your class homepage for the class. From your homepage, you can submit a paper. For more information on how to submit, please see our help page.
Welcome!
Welcome! If you are ready to enroll in a class, make sure you have already received the class ID and enrollment password from your instructor. Click here to enroll in a class.
enroll in a class

Figure 30: "Turnitin" account panorama, 2Dimensional appearance, 24 MARCH 2025(MALAYSIA TIMELINE)

Source: https://www.turnitin.com/s_home.asp?r=31.0797526360858&svr=6&lang=en_int&

Upon from this figure 28, the student named "KANG CHUANG HSIEN" are awaiting for "Turnitin" plagiarism checker authorization from any relevant instructor to permit the "Turnitin" checker report. This prove that the particular student already registered.

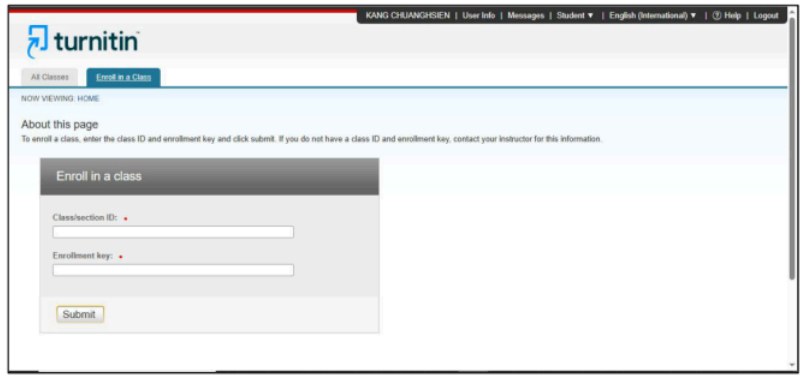
KANG CHUANGHSIEN | User Info | Messages | Student ▾ | English (International) ▾ | Help | Logout
turnitin
All Classes
Enroll in a Class
NOW VIEWING: HOME
About this page
To enroll a class, enter the class ID and enrollment key and click submit. If you do not have a class ID and enrollment key, contact your instructor for this information.
Enroll in a class
Class/section ID:
Enrollment key:
Submit

Figure 31: "Turnitin" account panorama, 2Dimensional appearance, 24 MARCH 2025(MALAYSIA TIMELINE)

Source: https://www.turnitin.com/s_home.asp?r=31.0797526360858&svr=6&lang=en_int&

By analyzing the above figure 29, the Enrollment key and Class ID are catered by any relevant instructors involved. Without the Enrollment key and Class ID, the operator for "Turnitin" plagiarism checker will paused and

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stuck on the half way. Thus, the results from the reports which are synthesized by “Turnitin” plagiarism checker which consisted of thesis and entire research project reports cannot be generated.

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BORANG PERMOHONAN LESEN MESIN CETAK

PERMOHONAN LESEN MESIN CETAK DI BAWAH SEKSYEN 3, AKTA MESIN CETAK DAN PENERBITAN 1984 (PINDAAN) 2012

Tandakan (X) pada status permohonan

BARU	* PERUBAHAN/PERTUKARAN BUTIRAN MAKLUMAT

* Nyatakan No. Lesen Mesin Cetak : _____

* Nyatakan Tarikh Mula : _____ Tarikh Tamat: _____

***SILA CATATKAN NO. RUJUKAN KDN: PQ/1780_____**

LENGKAPKAN SEMUA BUTIRAN DI BAWAH. PERMOHONAN TIDAK LENGKAP TIDAK AKAN DIPROSES.

A. MAKLUMAT PEMOHON *(Rujuk PANDUAN)*

1. Nama pemohon .....
2. Jawatan .....bertindak pihak Perniagaan/ Syarikat/ Pertubuhan seperti di para B
3. No. Kad Pengenalan Baru/Pasport .....
4. Warganegara .....
5. Alamat Tempat Tinggal .....

.....

No.Telefon (P).....No.Telefon (H/P).....No.Faks..... Emel.....

Nota: Pemohon yang bukan warganegara Malaysia perlu mengemukakan sesalinan pasport dan pas kerja.

B. MAKLUMAT SYARIKAT/PERNIAGAAN/PERTUBUHAN/INSTITUSI

1. Nama Syarikat/Perniagaan/Pertubuhan/Institusi .....

.....

Alamat surat-menyurat .....

.....

No. Telefon (P).....No. Faks.....E-mel.....

2. Corak Syarikat/Perniagaan/Pertubuhan/Institusi (Tandakan (x) pada yang berkenaan)

(a) Perniagaan Tunggal ☐ (c) Syarikat Perbadanan (Sdn Bhd/Bhd) ☐

(b) Perniagaan Perkongsian ☐ (d) Pertubuhan atau Institusi lain-lain ☐

C. MAKLUMAT KEDUDUKAN SYARIKAT/PERNIAGAAN/PERTUBUHAN/INSTITUSI

1. Perniagaan Tunggal/Perkongsian/Syarikat Perbadanan/Pertubuhan atau Institusi

(i) Nyatakan nama Pengarah/Pemegang Saham/Rakan Kongsi, Nilai dan % Saham dalam Syarikat

(a) ..... No. K.P/PP .....

Jawatan ..... Nilai RM ..... Peratus.....%

(b) ..... No. K.P/PP.....

Jawatan ..... Nilai RM ..... Peratus ..... %

Nota: (Jika ruang tidak mencukupi, sila lampirkan kertas berasingan)

1

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D. MAKLUMAT TEMPAT PERCETAKAN

1. Alamat tempat mesin cetak disimpan/digunakan

.....

.....

.....

No. Telefon ..... No. Faks..... E-mel.....

2. Tempat percetakan dalam kawasan

Majlis Bandaraya/Perbandaran/Daerah.....

3. Maklumat tentang suratan hakmilik tempat percetakan

(i) No. Geran .....

(ii) No. Lot .....

(iii) Jenis bangunan ; [ ] (*Rujuk PANDUAN* ; Contoh [1] Bangunan Perniagaan)

E. MAKLUMAT MESIN CETAK

1. Senaraikan jenis mesin-mesin cetak yang ada /akan dibeli

	Jenis Mesin/ Model	*No. Siri Mesin/ Model*
(i)	.....	.....
(ii)	.....	.....
(iii)	.....	.....
(iv)	.....	.....

Nota: (Jika ruang tidak mencukupi, sila lampirkan kertas berasingan)

2. Jenis percetakan yang dijalankan (*Rujuk PANDUAN* ; Contoh [1] : Am)

i) [ ] ii) [ ] iii) [ ] iv) [ ] v) [ ]

vi) Lain-lain .....

F. PENGAKUAN

Sesungguhnya saya mengaku bahawa segala keterangan yang diberi adalah sah dan benar. Saya menyedari bahawa sekiranya keterangan tersebut tidak sah dan tidak benar, maka Kementerian Dalam Negeri berhak membatalkan lesen saya tanpa memberi apa-apa notis atau alasan.

[ ]

....

(Tandatangan Pemohon) Tarikh

Cop Rasmi Syarikat/ Perniagaan /Pertubuhan

Nama:
No. K/P:

2

Figure 32: CONTOH BORANG PERMOHONAN LESIN MESIN CETAK YANG BELUM LENGKAP DIISI DAN DISAHLAKUKAN, Bahasa Malaysia version only, 26 MARCH 2025(MALAYSIA TIMELINE)

Source: https://www.scribd.com/doc/195672980/Borang-Permohonan-Lesen-Mesin-Cetak

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BORANG PERMOHONAN PERMIT PENERBITAN

PERMOHONAN PERMIT PENERBITAN DI BAWAH SEKSYEN 6
AKTA MESIN CETAK DAN PENERBITAN 1984 (PINDAAN) 2012

Tandakan (x) pada jenis permohonan

BARU	*PERUBAHAN/PERTUKARAN BUTIRAN MAKLUMAT

* Nyatakan No. Permit Penerbitan : _____

* Nyatakan Tarikh Mula : _____ Tarikh Tamat: _____

LENGKAPKAN SEMUA BUTIRAN DI BAWAH. PERMOHONAN TIDAK LENGKAP TIDAK AKAN DIPROSES.

A. MAKLUMAT PEMOHON (*Rujuk PANDUAN)*

1. Nama .....
2. Jawatan.....bertindak untuk dan bagi pihak Perniagaan/ Syarikat/ Pertubuhan seperti di para B
3. No. Kad Pengenalan Baru /Pasport .....
4. Warganegara .....
5. Alamat Pejabat .....

.....

No.Telefon (P).....No.Telefon (H/P).....No.Faks..... Emel.....

Nota: Pemohon yang bukan warganegara Malaysia perlu mengemukakan sesalinan pasport dan pas kerja.

B. MAKLUMAT PENERBIT (Perniagaan/Syarikat/Pertubuhan dsb.)

1. Nama Penerbit .....
2. Alamat surat-menyurat .....

.....

No.Telefon (P).....No.Telefon (H/P).....No.Faks..... Emel.....

3. Jenis Syarikat/Institusi Penerbitan (Tandakan (x) pada yang berkenaan)

(a) Syarikat Tunggal ☐ (c) Syarikat Perbadanan (Sdn Bhd/Bhd) ☐

(b) Syarikat Perkongsian ☐ (d) Pertubuhan atau Lain-lain Institusi ☐

C. MAKLUMAT KEDUDUKAN SYARIKAT

1. Syarikat Tunggal/Perkongsian/Syarikat Perbadanan/Pertubuhan atau Institusi

Nyatakan Nama Pengarah / Ahli Jawatankuasa / Pemegang Saham

(a) ..... No. K.P/PP..... ..... %
(b) . ..... No. K.P/PP..... ..... %
(c) ..... No. K.P/PP..... ..... %

Nota : (Jika tidak muat, sila lampirkan kertas berasingan)

1

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D. MAKLUMAT BUTIR PENERBITAN

1. Tajuk Penerbitan .....
(Tajuk di atas adalah yang tertera di sijil permit)

Terjemahan Tajuk Penerbitan bagi penerbitan selain Bahasa Melayu dan Bahasa Inggeris:

.....

2. *Jenis ☐☐ 3. *Corak/Kandungan ☐☐ .....

4. Kekerapan ..... 5. Jumlah Naskhah .....

6. i) Bahasa Utama..... 7. Harga Senaskhah .....

ii) Bahasa Lain-lain .....

8. Kawasan Pengedaran ..... 9. No. MICA .....
(Penerbitan Singapura sahaja)

10. Ulasan / Keterangan tentang akhbar atau penerbitan (jika tidak muat, sila lampirkan kertas berasingan)

.....

E. MAKLUMAT KETUA PENGARANG

1. Nama .....

2. No. Kad Pengenalan/Pasport .....

3. Warganegara .....

4. Pekerjaan Sekarang . .....

5. Alamat Pejabat .....

.....

No. Telefon ..... No. Fax ..... E-Mel .....

Nota: Ketua Pengarang yang bukan warganegara Malaysia perlu mengemukakan salinan pasport dan pas kerja.

F. MAKLUMAT PENCETAK

1. Nama Pencetak/Syarikat .....

2. Alamat .....

.....

3. No. Telefon ..... 4. No. Rujukan Lesen Mesin Cetak (KDN)

.....

Nota: Syarikat pencetak yang berdaftar di KDN sahaja akan dipertimbangkan.
Sila kemukakan sesalinan Lesen Mesin Cetak (LMC)

PENGAKUAN :

Sesungguhnya saya mengaku bahawa segala keterangan yang di atas adalah sah dan benar. Saya menyedari bahawa sekiranya keterangan tersebut tidak sah dan tidak benar, maka Kementerian Dalam Negeri berhak membatalkan permit saya tanpa memberi apa-apa notis atau alasan.

Tarikh .... Cop Rasmi Syarikat
(Tandatangan Pemohon)

* Sila rujuk **PANDUAN/SENARAI SEMAKAN**

2

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SURAT PENGESAHAN WAKIL PEMOHON

[Untuk diisi oleh wakil di Malaysia Bagi Penerbitan Singapura sahaja]

Tajuk Penerbitan .....

Saya nama, No. Kad Pengenalan dan beralamat seperti di bawah dengan ini mengesahkan bahawa saya bersetuju menjadi wakil pemohon di Malaysia untuk menerima penyampaian apa-apa notis atau proses undang-undang bagi pihak pemohon iaitu sebagaimana yang dikehendaki oleh seksyen 6 (3) Akta Mesin Cetak dan Penerbitan 1984 (Pindaan) 2012.

Nama Wakil Pemohon .....

No. Kad Pengenalan .....

Jawatan .....

Nama/ Alamat Syarikat .....

.....

.....

No. Telefon (P) .....

No. Telefon (H/P) .....

E-Mel .....

Tarikh .....

.....
(Tandatangan Wakil)

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Perhatian

Pemilik/ Ahli Lembaga Pengarah yang berkhidmat di syarikat yang berdaftar dengan Suruhanjaya Syarikat Malaysia (SSM) sahaja akan dipertimbangkan sebagai 'Wakil Pemohon di Malaysia'. Pastikan nama wakil terdapat di Maklumat Pemilik Masa Kini/ Borang 49.

3

Figure 33: CONTOH BORANG PERMOHONAN PERMIT PENERBITAN YANG BELUM LENGKAP DIISI DAN DISAHLAKUKAN , Bahasa Malaysia version only, 26 MARCH 2025(MALAYSIA TIMELINE)

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Table 1: Diameter for circular steel see-saw ring, plastic blade, triangular steel blade, nylon strings, circular metal mowel plate for the "tail" of the rod, bamboo rattans and bamboo strings (cm)

Diameter for circular steel see-saw ring, m)	Diameter for plastic blade, d_p(cm)	Diameter for triangular steel blade, d_t (cm)	Diameter for bamboo rattan alone before the insertion with the circular metal mowel plate for the "tail" of the rod , d_r (cm)	Diameter for bamboo string alone before the insertion with the circular metal mowel plate for the "tail" of the rod , d_b (cm	Diameter for nylon string alone before the insertion with the circular metal mowel plate for the "tail" of the rod, d_n (cm	Diameter for circular metal mowel plate for the "tail" of the rod, d_m (cm	Total diameter for bamboo rattans after the insertion with the circular metal mowel plate for the "tail" of the rod, $d_{trm} = d_m + d_{rm} + d_{rm}$ (cm)	Total diameter for bamboo strings after the insertion with the circular metal mowel plate for the "tail" of the rod, $d_{tbm} = d_m + d_{bm} + d_{bm}$ (cm)	Total diameter for nylon strings after the insertion with the circular metal mowel plate for the "tail" of the rod, $d_{tnm} = d_m + d_{nm} + d_{nm}$ (cm)

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				)					
15.0	14.0	15.0	23.3	23.3	23.3	12.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0
15.0	14.0	15.0	23.3	23.3	23.3	12.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0
15.0	14.0	15.0	23.3	23.3	23.3	12.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0
15.0	14.0	15.0	23.3	23.3	23.3	12.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0
15.0	14.0	15.0	23.3	23.3	23.3	12.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0
15.0	14.0	15.0	23.3	23.3	23.3	12.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0
15.0	14.0	15.0	23.3	23.3	23.3	12.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0
15.0	14.0	15.0	23.3	23.3	23.3	12.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0
15.0	14.0	15.0	23.3	23.3	23.3	12.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0	16.0+16.0+12.0=44.0

Source: WPS Office and Google Workspace

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Table 2: Radius of the circular motion for circular steel see-saw ring, plastic blade, triangular steel blade, nylon string, circular metal mowel plate for the "tail" of the rod, bamboo rattan and bamboo string (cm)

Radius for circular steel see-saw ring, ($r_c = d_c \div 2$) (cm)	Radius for plastic blade, ($r_p = d_p \div 2$) (cm)	Radius for triangular steel blade, ($r_t = d_t \div 2$) (cm)	Radius for bamboo string alone before the insertion with the circular metal mowel plate for the "tail" of the rod, ($r_b = d_b \div 2$) (cm)	Radius for bamboo rattan alone before the insertion with the circular metal mowel plate for the "tail" of the rod, ($r_r = d_r \div 2$) (cm)	Radius for nylon string alone before the insertion with the circular metal mowel plate for the "tail" of the rod, ($r_n = d_n \div 2$) (cm)	Radius for bamboo string alone after the insertion with the circular metal mowel plate for the "tail" of the rod, ($r_{tbm} = d_{tbm} \div 2$) (cm)	Radius for bamboo rattan alone after the insertion with the circular metal mowel plate for the "tail" of the rod, ($r_{trm} = d_{trm} \div 2$) (cm)	Radius for nylon string alone after the insertion with the circular metal mowel plate for the "tail" of the rod, ($r_{tnm} = d_{tnm} \div 2$) (cm)
7.5	7.0	7.5	11.65	11.65	11.65	22.0	22.0	22.0
7.5	7.0	7.5	11.65	11.65	11.65	22.0	22.0	22.0
7.5	7.0	7.5	11.65	11.65	11.65	22.0	22.0	22.0
7.5	7.0	7.5	11.65	11.65	11.65	22.0	22.0	22.0
7.5	7.0	7.5	11.65	11.65	11.65	22.0	22.0	22.0
7.5	7.0	7.5	11.65	11.65	11.65	22.0	22.0	22.0
7.5	7.0	7.5	11.65	11.65	11.65	22.0	22.0	22.0
7.5	7.0	7.5	11.65	11.65	11.65	22.0	22.0	22.0
7.5	7.0	7.5	11.65	11.65	11.65	22.0	22.0	22.0
7.5	7.0	7.5	11.65	11.65	11.65	22.0	22.0	22.0

Source: WPS Office and Google Workspace

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Table 3: Mass for circular steel see-saw ring, plastic blade, triangular steel blade, nylon strings, circular metal mowel plate for the "tail" of the rod, bamboo rattans and bamboo strings without one cardboard (g)

Mass for circular steel see-saw ring, (m_c) (g)	Mass for plastic blade, (m_p)	Mass for triangular steel blade, (m_t) (g)	Mass for bamboo string, (m_b) (g)	Mass for bamboo rattan, (m_r) (g)	Mass for nylon string, (m_n) (g)	Mass for circular metal mowel plate for the "tail" of the rod, (m_m) (g)	Total mass for bamboo strings after the insertion with the circular metal mowel plate for the "tail" of the rod, ($m_{tbm}=m_m+m_b+m_b$) (g)	Total mass for bamboo rattans after the insertion with the circular metal mowel plate for the "tail" of the rod, ($m_{trm}=m_m+m_r+m_r$) (g)	Total mass for nylon strings and after the insertion with the circular metal mowel plate for the "tail" of the rod, ($m_{tnm}=m_m+m_n+m_n$) (g)
110.0	3.0	27.0	0.18	0.75	1.5	107.0	(0.18+0.18+107.0 =107.36)	(0.75+0.75+107.0 =108.50)	(1.5+1.5 +107.0 =110.0)
110.0	3.0	27.0	0.18	0.75	1.5	107.0	(0.18+0.18+107.0 =107.36)	(0.75+0.75+107.0 =108.50)	(1.5+1.5 +107.0 =110.0)
110.0	3.0	27.0	0.18	0.75	1.5	107.0	(0.18+0.18+107.0 =107.36)	(0.75+0.75+107.0 =108.50)	(1.5+1.5 +107.0 =110.0)
110.0	3.0	27.0	0.18	0.75	1.5	107.0	(0.18+0.18+107.0 =107.36)	(0.75+0.75+107.0 =108.50)	(1.5+1.5 +107.0 =110.0)
110.	3.0	27.0	0.18	0.75	1.5	107.	(0.18+0.1	(0.75+0.7	(1.5+1.5

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0						**0**	**8+107.0 =107.36)**	**5+107.0 =108.50)**	**+107.0 =110.0)**
110.0	**3.0**	**27.0**	**0.18**	**0.75**	**1.5**	**107.0**	**(0.18+0.18+107.0 =107.36)**	**(0.75+0.75+107.0 =108.50)**	**(1.5+1.5 +107.0 =110.0)**
110.0	**3.0**	**27.0**	**0.18**	**0.75**	**1.5**	**107.0**	**(0.18+0.18+107.0 =107.36)**	**(0.75+0.75+107.0 =108.50)**	**(1.5+1.5 +107.0 =110.0)**
110.0	**3.0**	**27.0**	**0.18**	**0.75**	**1.5**	**107.0**	**(0.18+0.18+107.0 =107.36)**	**(0.75+0.75+107.0 =108.50)**	**(1.5+1.5 +107.0 =110.0)**
110.0	**3.0**	**27.0**	**0.18**	**0.75**	**1.5**	**107.0**	**(0.18+0.18+107.0 =107.36)**	**(0.75+0.75+107.0 =108.50)**	**(1.5+1.5 +107.0 =110.0)**
110.0	**3.0**	**27.0**	**0.18**	**0.75**	**1.5**	**107.0**	**(0.18+0.18+107.0 =107.36)**	**(0.75+0.75+107.0 =108.50)**	**(1.5+1.5 +107.0 =110.0)**

Source: WPS Office and Google Workspace

Table 4: Minimum and Maximum time taken for the angular circulation motion of the circular steel see-saw ring, plastic blade, triangular steel blade,nylon string, bamboo rattan and bamboo string (s)

Minimum time taken for circular steel see-saw ring,	**Minimum time taken for plastic blade, ($t_{pminimum}$) (s)**	**Minimum time taken for triangular steel blade, (t_{tmini}**	**Minimum time taken for bamboo string, ($t_{bminimum}$) (s)**	**Minimum time taken for bamboo rattan, ($t_{rminimum}$) (s)**	**Minimum time taken for nylon string, ($t_{nminimum}$) (s)**	**Maximum time taken for circular steel see-saw ring,**	**Maximum time taken for plastic blade, ($t_{pmaximum}$) (s)**	**Maximum time taken for triangular steel blade, (t_{tmaxi}**	**Maximum time taken for bamboo string, ($t_{bmaximum}$) (s)**	**Maximum time taken for bamboo rattan, ($t_{rmaximum}$) (s)**	**Maximum time taken for nylon string, ($t_{nmaximum}$) (s)**

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($t_{cminimum}$) (s)		($_{mum}$) (s)				($t_{cmaximum}$) (s)		($_{mum}$) (s)			
7200	7200	7200	7200	7200	7200	10800	10800	10800	10800	10800	10800
7200	7200	7200	7200	7200	7200	10800	10800	10800	10800	10800	10800
7200	7200	7200	7200	7200	7200	10800	10800	10800	10800	10800	10800
7200	7200	7200	7200	7200	7200	10800	10800	10800	10800	10800	10800
7200	7200	7200	7200	7200	7200	10800	10800	10800	10800	10800	10800
7200	7200	7200	7200	7200	7200	10800	10800	10800	10800	10800	10800
7200	7200	7200	7200	7200	7200	10800	10800	10800	10800	10800	10800
7200	7200	7200	7200	7200	7200	10800	10800	10800	10800	10800	10800
7200	7200	7200	7200	7200	7200	10800	10800	10800	10800	10800	10800
7200	7200	7200	7200	7200	7200	10800	10800	10800	10800	10800	10800

Source: WPS Office and Google Workspace

Table 5: Minimum and Maximum angular velocity for circular steel see-saw ring, plastic blade, triangular steel blade, bamboo rattan and bamboo string (cms-1)

Minimum angular velocity for circular steel see-saw	Minimum angular velocity for plastic blade, (v_{pmi}	Minimum angular velocity for triangular steel blad	Minimum angular velocity for bamboo strings, (v_{bmi}	Minimum angular velocity for bamboo rattans, (v_{rmin}	Minimum angular velocity for nylon strings, (v_{bmi}	Maximum angular velocity for circular steel see-saw	Maximum angular velocity for plastic blade, (v_{pma}	Maximum angular velocity for triangular steel blad	Maximum angular velocity for bamboo strings, (v_{bma}	Maximum angular velocity for bamboo rattans, (v_{rmax}	Maximum angular velocity for nylon strings, (v_{nma}

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ring, ($v_{cminimum} = r_c \div t_{cminimum}$) ($1 \times 10^{-3} ms^{-1}$)	$_{nimum} = r_p \div t_{pminimum}$) ($1 \times 10^{-3} cm s^{-1}$)	e, ($v_{tminimum} = r_t \div t_{minimum}$) ($1 \times 10^{-3} cm s^{-1}$)	$_{nimum} = r_{tbm} \div t_{bminimum}$) ($1 \times 10^{-3} cm s^{-1}$)	$_{imum} = r_{trm} \div t_{rminimum}$) ($1 \times 10^{-3} cm s^{-1}$)	$_{nimum} = r_{tnm} \div t_{bminimum}$) ($1 \times 10^{-3} cm s^{-1}$)	ring, ($v_{cmaximum} = r_c \div t_{cmaximum}$) ($1 \times 10^{-3} ms^{-1}$)	$_{ximum} = r_p \div t_{pmaximum}$) ($1 \times 10^{-3} cms^{-1}$)	e, ($v_{tmaximum} = r_t \div t_{tmaximum}$) ($1 \times 10^{-3} cms^{-1}$)	$_{ximum} = r_{tbm} \div t_{bmaximum}$) ($1 \times 10^{-3} cms^{-1}$)	$_{imum} = r_{trm} \div t_{rmaximum}$) ($1 \times 10^{-3} cms^{-1}$)	$_{ximum} = r_{tnm} \div t_{nmaximum}$) ($1 \times 10^{-3} cms^{-1}$)
1.0416	0.9720	1.0416	3.0500	3.0500	3.0500	0.6940	0.6481	0.6940	2.037	2.037	2.037
1.0416	0.9720	1.0416	3.0500	3.0500	3.0500	0.6940	0.6481	0.6940	2.037	2.037	2.037
1.0416	0.9720	1.0416	3.0500	3.0500	3.0500	0.6940	0.6481	0.6940	2.037	2.037	2.037
1.0416	0.9720	1.0416	3.0500	3.0500	3.0500	0.6940	0.6481	0.6940	2.037	2.037	2.037
1.0416	0.9720	1.0416	3.0500	3.0500	3.0500	0.6940	0.6481	0.6940	2.037	2.037	2.037
1.0416	0.9720	1.0416	3.0500	3.0500	3.0500	0.6940	0.6481	0.6940	2.037	2.037	2.037
1.0416	0.9720	1.0416	3.0500	3.0500	3.0500	0.6940	0.6481	0.6940	2.037	2.037	2.037
1.0416	0.9720	1.0416	3.0500	3.0500	3.0500	0.6940	0.6481	0.6940	2.037	2.037	2.037
1.0416	0.9720	1.0416	3.0500	3.0500	3.0500	0.6940	0.6481	0.6940	2.037	2.037	2.037
1.0416	0.9720	1.0416	3.0500	3.0500	3.0500	0.6940	0.6481	0.6940	2.037	2.037	2.037

Source: WPS Office and Google Workspace

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Table 6: Minimum and Maximum angular acceleration for circular steel see-saw ring, plastic blade, triangular steel blade, bamboo rattans and bamboo string (cms^{-2})

Minimum angular acceleration for circular steel see-saw ring, ($a_{cminimum} = v_{cminimum} \div t_{cminimum}$) ($1\times10^{-7} cms^{-2}$)	Minimum angular acceleration for plastic blade, ($a_{pminimum} = v_{pminimum} \div t_{pminimum}$) ($1\times10^{-7} cms^{-2}$)	Minimum angular acceleration for triangular steel blade, ($a_{tminimum} = v_{tminimum} \div t_{tminimum}$) ($1\times10^{-7} cms^{-2}$)	Minimum angular acceleration for bamboo strings, ($a_{bminimum} = v_{bminimum} \div t_{bminimum}$) ($1\times10^{-7} cms^{-2}$)	Minimum angular acceleration for bamboo rattans, ($a_{rminimum} = v_{rminimum} \div t_{rminimum}$) ($1\times10^{-7} cms^{-2}$)	Minimum angular acceleration for nylon strings, ($a_{nminimum} = v_{nminimum} \div t_{nminimum}$) ($1\times10^{-7} cms^{-2}$)	Maximum angular acceleration for circular steel see-saw ring, ($a_{c} = v_{cmaximum} \div t_{cmaximum}$) ($1\times10^{-7} cms^{-2}$)	Maximum angular acceleration for plastic blade, ($a_{pmaximum} = v_{pmaximum} \div t_{pmaximum}$) ($1\times10^{-7} cms^{-2}$)	Maximum angular acceleration for triangular steel blade, ($a_{tmaximum} = v_{tmaximum} \div t_{tmaximum}$) ($1\times10^{-7} cms^{-2}$)	Maximum angular acceleration for bamboo strings, ($a_{bmaximum} = v_{bmaximum} \div t_{bmaximum}$) ($1\times10^{-7} cms^{-2}$)	Maximum angular acceleration for bamboo rattans, ($a_{rmaximum} = v_{rmaximum} \div t_{rmaximum}$) ($1\times10^{-7} cms^{-2}$)	Maximum angular acceleration for nylonstrings, ($a_{nmaximum} = v_{nmaximum} \div t_{nmaximum}$) ($1\times10^{-7} cms^{-2}$)
1.446	1.350	1.446	4.2361	4.2361	4.2361	0.6426	0.6001	0.6426	1.8861	1.8861	1.8861
1.446	1.350	1.446	4.2361	4.2361	4.2361	0.6426	0.6001	0.6426	1.8861	1.8861	1.8861
1.446	1.350	1.446	4.2361	4.2361	4.2361	0.6426	0.6001	0.6426	1.8861	1.8861	1.8861
1.446	1.350	1.446	4.2361	4.2361	4.2361	0.6426	0.6001	0.6426	1.8861	1.8861	1.8861
1.44	1.35	1.44	4.23	4.23	4.23	0.64	0.60	0.64	1.88	1.88	1.88

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6	0	6	61	61	61	26	01	26	61	61	61
1.446	1.350	1.446	4.2361	4.2361	4.2361	0.6426	0.6001	0.6426	1.8861	1.8861	1.8861
1.446	1.350	1.446	4.2361	4.2361	4.2361	0.6426	0.6001	0.6426	1.8861	1.8861	1.8861
1.446	1.350	1.446	4.2361	4.2361	4.2361	0.6426	0.6001	0.6426	1.8861	1.8861	1.8861
1.446	1.350	1.446	4.2361	4.2361	4.2361	0.6426	0.6001	0.6426	1.8861	1.8861	1.8861
1.446	1.350	1.446	4.2361	4.2361	4.2361	0.6426	0.6001	0.6426	1.8861	1.8861	1.8861

Source: WPS Office and Google Workspace

Table 7: Minimum and Maximum circular angular force for circular steel see-saw ring, plastic blade, triangular steel blade, bamboo rattan and bamboo string ($gcms^{-2}$=N)

Minimum circular angular force for circular steel see-saw ring, $_{nimum} = m_c \times a_{cminimum})(1\times$	Minimum circular angular force for plastic blade, $(F_{pminimum} = m_p \times a_{pminimum})(1\times 10^{-7}gc$	Minimum circular angular force for triangular steel blade, $(F_{tminimum} = m_t \times a_{tminimum})(1\times 10^{-7}gc$	Minimum circular angular force for bamboo strings, $(F_{bminimum} = m_b \times a_{bminimum})(1\times 10^{-7}gc$	Minimum circular angular force for bamboo rattans, $(F_{rminimum} = m_r \times a_{rminimum})(1\times 10^{-7}gcms^{-}$	Minimum circular angular force for nylon strings, $(F_{nminimum} = m_n \times a_{nminimum})(1\times 10^{-7}gc$	Maximum circular angular force for circular steel see-saw ring, $_{ximum} = m_c \times a_{cmaximum})(1\times$	Maximum circular angular force for plastic blade, $(F_{pmaximum} = m_p \times a_{pmaximum})(1\times 10^{-7}gcms^{-}$	Maximum circular angular force for triangular steel blade, $(F_{tmaximum} = m_t \times a_{tmaximum})(1\times 10^{-}$	Maximum circular angular force for bamboo strings, $(F_{bmaximum} = m_b \times a_{bmaximum})(1\times 10^{-7}gcms^{-}$	Maximum circular angular force for bamboo rattans, $(F_{rmaximum} = m_r \times a_{rmaximum})(1\times 10^{-7}gcms^{-}$	Maximum circular angular force for nylon strings, $(F_{nmaximum} = m_n \times a_{nmaximum})(1\times 10^{-7}gcms^{-}$

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10-7gc ms-2)	ms-2)	ms-2)	ms-2)	2)	ms-2)	10-7gc ms-2)	2)	7gc ms-2)	2)	2)	2)
159.06	4.05	39.042	1.525	6.3542	12.708	70.686	1.800	17.350	0.6790	2.8292	5.658
159.06	4.05	39.042	1.525	6.3542	12.708	70.686	1.800	17.350	0.6790	2.8292	5.658
159.06	4.05	39.042	1.525	6.3542	12.708	70.686	1.800	17.350	0.6790	2.8292	5.658
159.06	4.05	39.042	1.525	6.3542	12.708	70.686	1.800	17.350	0.6790	2.8292	5.658
159.06	4.05	39.042	1.525	6.3542	12.708	70.686	1.800	17.350	0.6790	2.8292	5.658
159.06	4.05	39.042	1.525	6.3542	12.708	70.686	1.800	17.350	0.6790	2.8292	5.658
159.06	4.05	39.042	1.525	6.3542	12.708	70.686	1.800	17.350	0.6790	2.8292	5.658
159.06	4.05	39.042	1.525	6.3542	12.708	70.686	1.800	17.350	0.6790	2.8292	5.658
159.06	4.05	39.042	1.525	6.3542	12.708	70.686	1.800	17.350	0.6790	2.8292	5.658
159.06	4.05	39.042	1.525	6.3542	12.708	70.686	1.800	17.350	0.6790	2.8292	5.658

Source: WPS Office and Google Workspace

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Table 8: Minimum and Maximum power output for circular steel see-saw ring, plastic blade, triangular steel blade, bamboo rattan and bamboo string,

Minimum power output for circular steel see-saw ring ($P_{cminimum} = F_{cminimum} \times v_{cminimum}$) ($1 \times 10^{-10} gc^2 m^2 s^{-3}$)	Minimum power output for plastic blade, ($P_{pminimum} = F_{pminimum} \times v_{pminimum}$) ($1 \times 10^{-10} gc^2 m^2 s^{-3}$)	Minimum power output for triangular steel blade, ($P_{tminimum} = F_{tminimum} \times v_{tminimum}$) ($1 \times 10^{-10} gc^2 m^2 s^{-3}$)	Minimum power output for bamboo strings, ($P_{bminimum} = F_{bminimum} \times v_{bminimum}$) ($1 \times 10^{-10} gc^2 m^2 s^{-3}$)	Minimum power output for bamboo rattans, ($P_{rminimum} = F_{rminimum} \times v_{rminimum}$) ($1 \times 10^{-10} gc^2 m^2 s^{-3}$)	Minimum power output for nylon strings, ($P_{nminimum} = F_{nminimum} \times v_{nminimum}$) ($1 \times 10^{-10} gc^2 m^2 s^{-3}$)	Maximum power output for circular steel see-saw ring ($P'_{cmaximum} = F_{cmaximum} \times v_{cmaximum}$) ($1 \times 10^{-10} gc^2 m^2 s^{-3}$)	Maximum power output for plastic blade, ($P_{pmaximum} = F_{pmaximum} \times v_{pmaximum}$) ($1 \times 10^{-10} gc^2 m^2 s^{-3}$)	Maximum power output for triangular steel blade, ($P_{tmaximum} = F_{tmaximum} \times v_{tmaximum}$) ($1 \times 10^{-10} gc^2 m^2 s^{-3}$)	Maximum power output for bamboo strings, ($P_{bmaximum} = F_{bmaximum} \times v_{bmaximum}$) ($1 \times 10^{-10} gc^2 m^2 s^{-3}$)	Maximum power output for bamboo rattans, ($P_{rmaximum} = F_{rmaximum} \times v_{rmaximum}$) ($1 \times 10^{-10} gc^2 m^2 s^{-3}$)	Maximum power output for nylon strings, ($P_{nmaximum} = F_{nmaximum} \times v_{nmaximum}$) ($1 \times 10^{-10} gc^2 m^2 s^{-3}$)
165.775	3.93384	40.666	4.65125	19.4509	38.9092	49.1118	1.16969	12.0563	1.38032	5.76032	11.5027
165.775	3.93384	40.666	4.65125	19.4509	38.9092	49.1118	1.16969	12.0563	1.38032	5.76032	11.5027
165.775	3.93384	40.666	4.65125	19.4509	38.9092	49.1118	1.16969	12.0563	1.38032	5.76032	11.5027
165.775	3.93384	40.666	4.65125	19.4509	38.9092	49.1118	1.16969	12.0563	1.38032	5.76032	11.5027

($gc \cdot m^2 s^{-3} = W$)

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165.775	3.9384	40.666	4.65125	19.4509	38.9092	49.118	1.1669	12.0563	1.3832	5.7632	11.527
165.775	3.9384	40.666	4.65125	19.4509	38.9092	49.118	1.1669	12.0563	1.3832	5.7632	11.527
165.775	3.9384	40.666	4.65125	19.4509	38.9092	49.118	1.1669	12.0563	1.3832	5.7632	11.527
165.775	3.9384	40.666	4.65125	19.4509	38.9092	49.118	1.1669	12.0563	1.3832	5.7632	11.527
165.775	3.9384	40.666	4.65125	19.4509	38.9092	49.118	1.1669	12.0563	1.3832	5.7632	11.527
165.775	3.9384	40.666	4.65125	19.4509	38.9092	49.118	1.1669	12.0563	1.3832	5.7632	11.527

Source: WPS Office and Google Workspace

Minimum: $1-0.9999999999997 9, 1-0.99999999999978, 1-0.99999999999774,$

$1-0.99999999999974 16, 1-0.99999999999892, 1-0.99999999999784$

Maximum: $1-0.99999999999727, 1-0.99999999999994, 1-0.99999999999933,$

$1-0.999999999999992, 1-0.999999999999968, 1-0.99999999999936$

Minimum efficiency for every types of blades consumed:
(79, 97.8, 77.4, 97.42, 89.2, 78.4)%
Summation for the minimum efficiency for every types of blades consumed in terms of percentage= (79+97.8+77.4+97.42+89.2+78.4)% = 519.22%

Maximum efficiency for every types of blades consumed:
(72.70, 99.4, 93.3, 99.2, 96.8, 93.6)%
Summation for the maximum efficiency for every types of blades consumed in terms of percentage= (72.70+ 99.4+ 93.3+ 99.2+96.8+93.6)% = 555%

(79−72.70)% = 6.3%, (99.4−97.8)% = 1.6%, (93.3−77.4)% = 15.9%,
(99.2−97.42)% = 1.78%, (96.8−89.2)%= 7.6%, (93.6−78.4)% = 15.2%

Difference between summation for the maximum efficiency for every types of blades consumed in terms of percentage
=(555−519.22)% = 35.78%

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Table 9: Table of Minimum Power Output for Each Types of Consumed Blades (1×10^{10}) Versus Mass for Each Types of Consumed Blades (g)

Mass for each types of consumed blades	Minimum power output for each types of consumed blades
110	165.775
3	3.9384
27	40.666
0.36	4.65125
3	38.9092
1.5	19.4509

Source: WPS Office and Google Workspace

Table 10: Table of Maximum Power Output for Each Types of Consumed Blades (1×10^{10}) Versus Mass for Each Types of Consumed Blades (g)

Mass for each types of consumed blades	Maximum power output for each types of consumed blades
110	49.118
3	1.1669
27	12.0563
0.36	1.3832
3	11.527
1.5	5.7632

Source: WPS Office and Google Workspace

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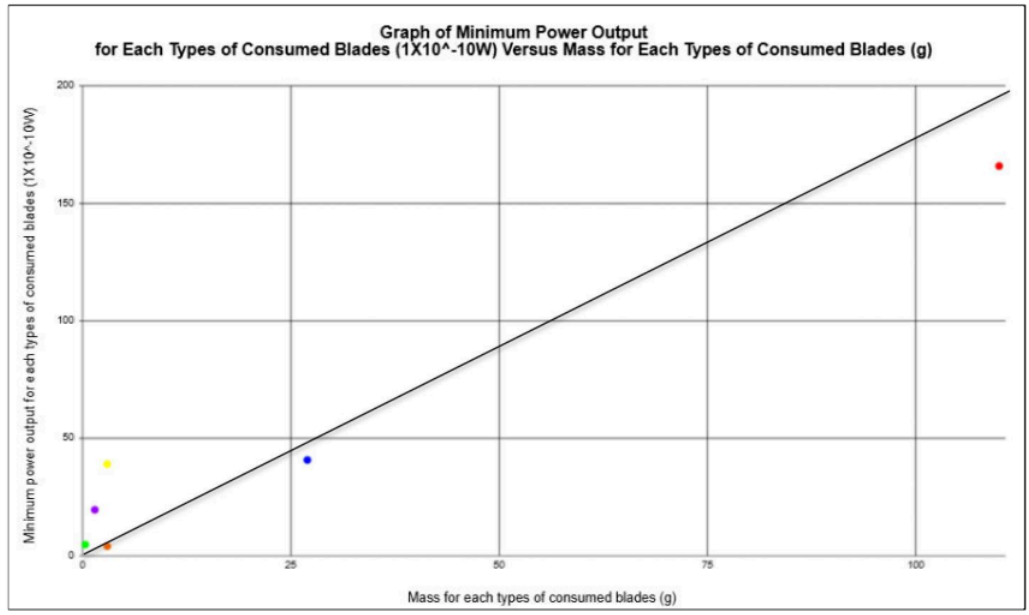

Figure 35: Graph of Minimum Power Output for Each Types of Consumed Blades (1×10^{-10}W) Versus Mass for Each Types of Consumed Blades (g), 11 APRIL 2025 (MALAYSIA TIMELINE)

Source: WPS Office and Google Workspace

$$P_{\text{types of the materials minimum}} = (F_{\text{types of the materials minimum}} \times v_{\text{types of the materials minimum}}) = (m_{\text{types of the materials minimum}} \times a_{\text{types of the materials minimum}} \times v_{\text{types of the materials minimum}})$$

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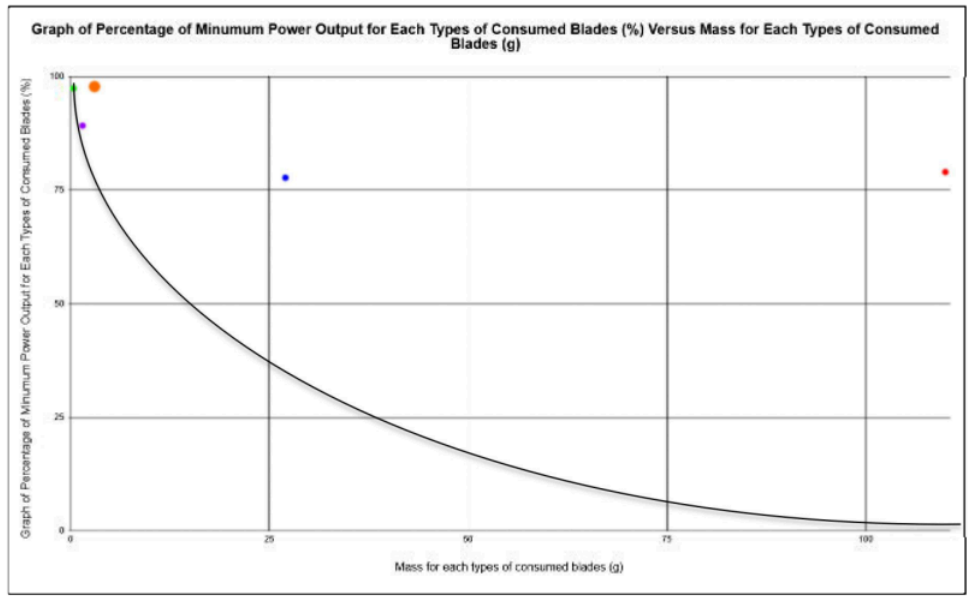
Graph of Percentage of Minumum Power Output for Each Types of Consumed Blades (%) Versus Mass for Each Types of Consumed Blades (g)
Graph of Percentage of Minumum Power Output for Each Types of Consumed Blades (%)
100
75
50
25
0
0
25
50
75
100
Mass for each types of consumed blades (g)

Figure 36: Graph of Percentage of Minimum Power Output for Each Types of Consumed Blades (%) Versus Mass for Each Types of Consumed Blades (g), 19 APRIL 2025

(MALAYSIA TIMELINE)

Source: WPS Office and Google Workspace

$$(P_{\text{types of the materials minimum output}} \div P_{\text{types of the materials minimum input}}) \times 100\%$$
$$= (F_{\text{types of the materials minimum output}} \times v_{\text{types of the materials minimum output}}) \div P_{\text{types of the materials minimum input}}$$
$$= (m_{\text{types of the materials}} \times a_{\text{types of the materials minimum output}} \times v_{\text{types of the materials minimum output}}) \div P_{\text{types of the materials minimum input}}$$
$$= (P_{\text{types of the materials minimum output}}) \div (m_{\text{types of the materials}} \times a_{\text{types of the materials minimum output}} \times v_{\text{types of the materials minimum output}})$$

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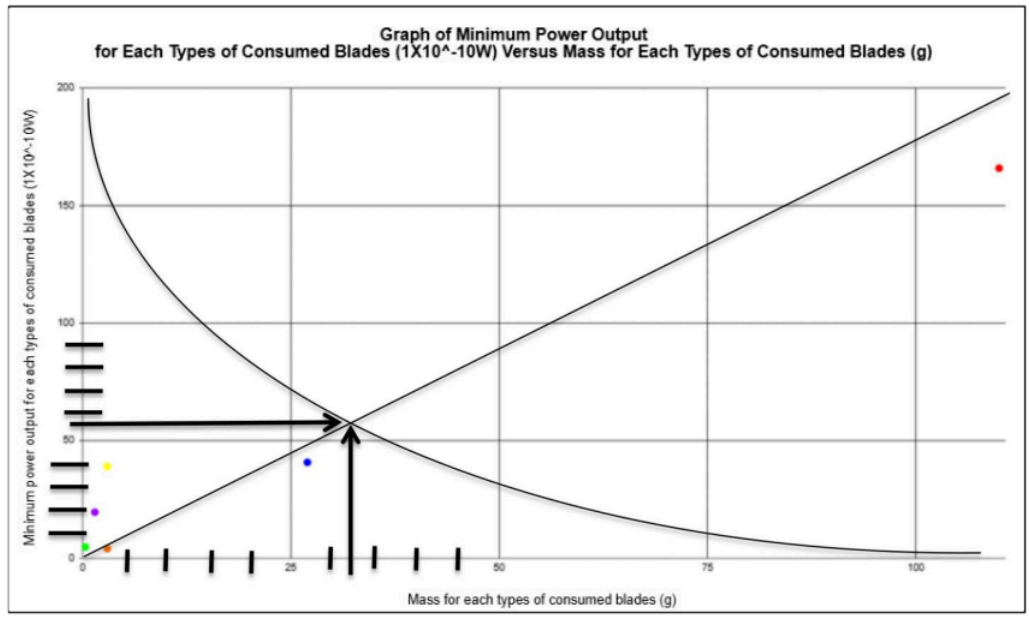

Figure 37: Graph of Minimum Power Output for Each Types of Consumed Blades (1×10^{-10}W) Versus Mass for Each Types of Consumed Blades (g) when percentage terms involved, 19 APRIL 2025 (MALAYSIA TIMELINE)

Source: WPS Office and Google Workspace

$$(P_{\text{types of the materials minimum output}} \div P_{\text{types of the materials minimum input}}) \times 100\%$$
$$= (F_{\text{types of the materials minimum output}} \times v_{\text{types of the materials minimum output}}) \div P_{\text{types of the materials minimum input}}$$
$$= (m_{\text{types of the materials}} \times a_{\text{types of the materials minimum output}} \times v_{\text{types of the materials minimum output}}) \div P_{\text{types of the materials minimum input}}$$
$$= (P_{\text{types of the materials minimum output}}) \div (m_{\text{types of the materials}} \times a_{\text{types of the materials minimum output}} \times v_{\text{types of the materials minimum output}})$$
$$P_{\text{types of the materials minimum}}$$
$$= (F_{\text{types of the materials minimum}} \times v_{\text{types of the materials minimum}})$$
$$= (m_{\text{types of the materials minimum}} \times a_{\text{types of the materials minimum}} \times v_{\text{types of the materials minimum}})$$

For the minimum interception point,

$$(m_{\text{types of the materials minimum}} \times a_{\text{types of the materials minimum}} \times v_{\text{types of the materials minimum}})$$
$$= (P_{\text{types of the materials minimum output}}) \div (m_{\text{types of the materials}} \times a_{\text{types of the materials minimum output}} \times v_{\text{types of the materials minimum output}})$$

$$(m_{\text{types of the materials}} \times a_{\text{types of the materials minimum output}} \times v_{\text{types of the materials minimum output}})^2$$
$$= (P_{\text{types of the materials minimum output}})$$

From the Graph of Minimum Power Output for Each Types of Consumed Blades (1×10^{-10}W) Versus Mass for Each Types of Consumed Blades (g) when percentage terms involved,

When $m_{\text{types of the materials}} = 32.5$g, then, $(P_{\text{types of the materials minimum output}}) = 51 \times 10^{-10}$W

Therefore, the minimum interception point will be (32.5g , 51×10^{-10}W)

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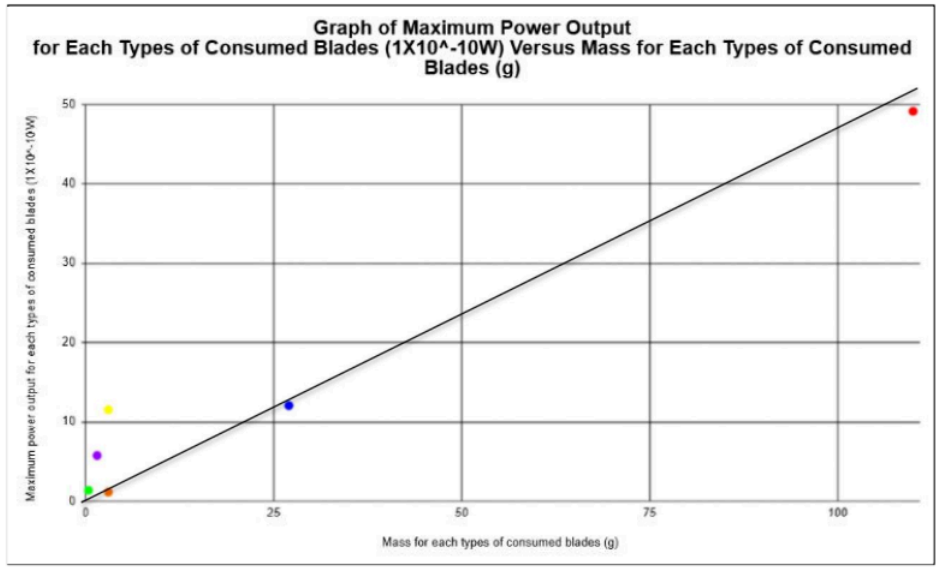

Figure 38: Graph of Maximum Power Output for Each Types of Consumed Blades (1×10^{-10}W) Versus Mass for Each Types of Consumed Blades (g), 11 APRIL 2025 (MALAYSIA TIMELINE)

Source: WPS Office and Google Workspace

$$P_{\text{types of the materials maximum}} = (F_{\text{types of the materials maximum}} \times v_{\text{types of the materials maximum}}) = (m_{\text{types of the materials maximum}} \times a_{\text{types of the materials maximum}} \times v_{\text{types of the materials maximum}})$$

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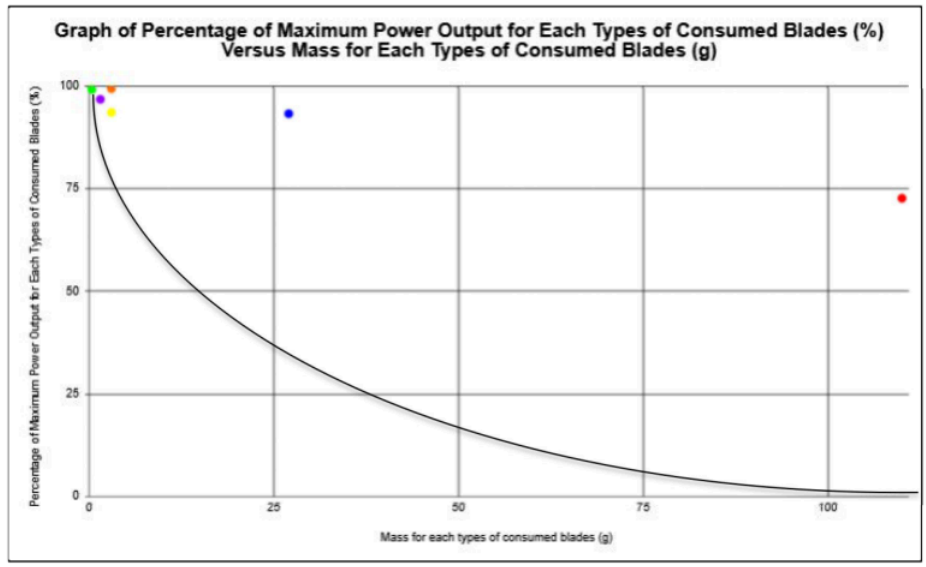
Graph of Percentage of Maximum Power Output for Each Types of Consumed Blades (%) Versus Mass for Each Types of Consumed Blades (g)
Percentage of Maximum Power Output for Each Types of Consumed Blades (%)
100
75
50
25
0
0
25
50
75
100
Mass for each types of consumed blades (g)

Figure 39: Graph of Percentage of Maximum Power Output for Each Types of Consumed Blades (%) Versus Mass for Each Types of Consumed Blades (g), 19 APRIL 2025 (MALAYSIA TIMELINE)

Source: WPS Office and Google Workspace

$$(P_{\text{types of the materials maximum output}} \div P_{\text{types of the materials maximum input}}) \times 100\%$$
$$= (F_{\text{types of the materials maximum output}} \times v_{\text{types of the materials maximum output}}) \div P_{\text{types of the materials maximum input}}$$
$$= (m_{\text{types of the materials}} \times a_{\text{types of the materials maximum output}} \times v_{\text{types of the materials maximum output}}) \div P_{\text{types of the materials maximum input}}$$
$$= (P_{\text{types of the materials maximum output}}) \div (m_{\text{types of the materials}} \times a_{\text{types of the materials maximum output}} \times v_{\text{types of the materials maximum output}})$$

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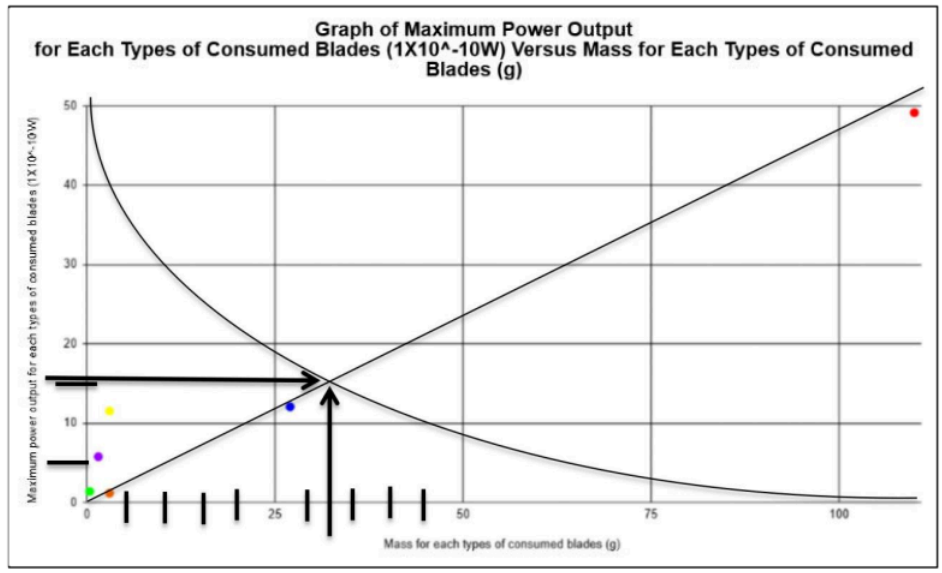

Figure 40: Graph of Maximum Power Output for Each Types of Consumed Blades (1×10^{-10}W) Versus Mass for Each Types of Consumed Blades when percentage terms involved (g), 19 APRIL 2025 (MALAYSIA TIMELINE)

Source: WPS Office and Google Workspace

$$(P_{\text{types of the materials maximum output}} \div P_{\text{types of the materials maximum input}}) \times 100\%$$
$$= (F_{\text{types of the materials maximum output}} \times v_{\text{types of the materials maximum output}}) \div P_{\text{types of the materials maximum input}}$$
$$= (m_{\text{types of the materials}} \times a_{\text{types of the materials maximum output}} \times v_{\text{types of the materials maximum output}}) \div P_{\text{types of the materials maximum input}}$$
$$= (P_{\text{types of the materials maximum output}}) \div (m_{\text{types of the materials}} \times a_{\text{types of the materials maximum output}} \times v_{\text{types of the materials maximum output}})$$
$$P_{\text{types of the materials minimum}}$$
$$= (F_{\text{types of the materials maximum}} \times v_{\text{types of the materials maximum}})$$
$$= (m_{\text{types of the materials maximum}} \times a_{\text{types of the materials maximum}} \times v_{\text{types of the materials maximum}})$$

For the maximum interception point,

$$(m_{\text{types of the materials maximum}} \times a_{\text{types of the materials maximum}} \times v_{\text{types of the materials maximum}})$$
$$= (P_{\text{types of the materials maximum output}}) \div (m_{\text{types of the materials}} \times a_{\text{types of the materials maximum output}} \times v_{\text{types of the materials maximum output}})$$

$$(m_{\text{types of the materials}} \times a_{\text{types of the materials maximum output}} \times v_{\text{types of the materials maximum output}})^2$$
$$= (P_{\text{types of the materials maximum output}})$$

From the Graph of Maximum Power Output for Each Types of Consumed Blades (1×10^{-10}W) Versus Mass for Each Types of Consumed Blades (g) when percentage terms involved,

When $m_{\text{types of the materials}} = 32.5$g, then, $(P_{\text{types of the materials minimum output}}) = 18 \times 10^{-10}$W

Therefore, the maximum interception point will be (32.5g , 18×10^{-10}W)

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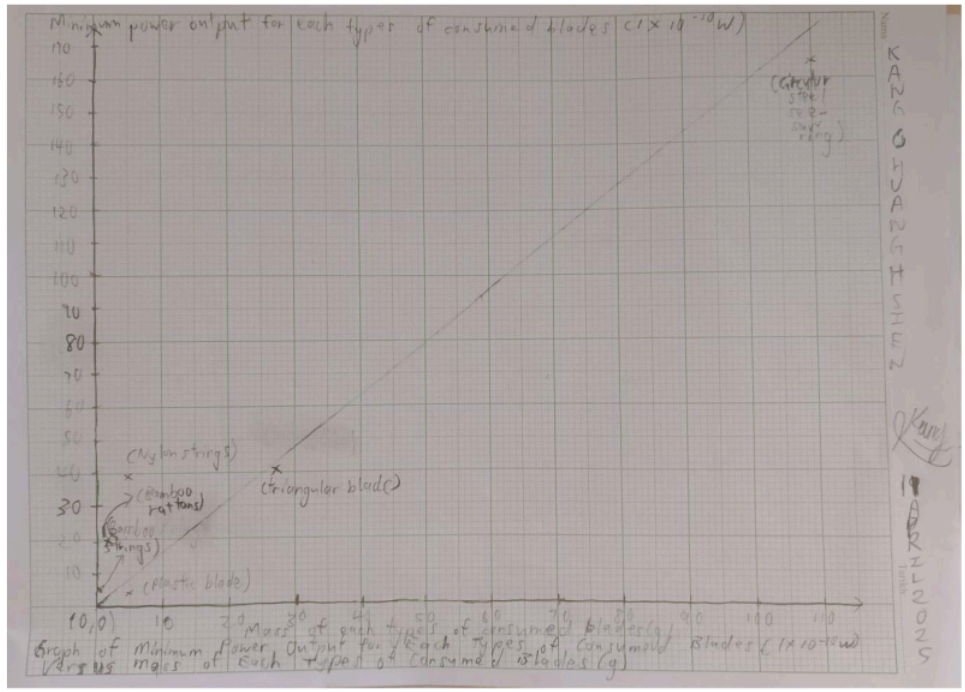
Minimum power output for each types of consumed blades (1×10⁻¹⁰W)
(Nylon strings)
(Bamboo rattans)
(Bamboo strings)
(Plastic blade)
(Triangular blade)
10,0
Mass of each types of consumed blades (g)
Graph of Minimum Power Output for Each Types of Consumed Blades (1×10⁻¹⁰W) Versus Mass of Each Types of Consumed Blades (g)
KANG CHUANG HSIEN
11 APRIL 2025

Figure 41: Graph of Minimum Power Output for Each Types of Consumed Blades (1×10^{-10}W) Versus Mass for Each Types of Consumed Blades (g), 11 APRIL 2025 (MALAYSIA TIMELINE)

Source: Hand-plotted by KANG CHUANG HSIEN and to be verified during prototype for "PSP"

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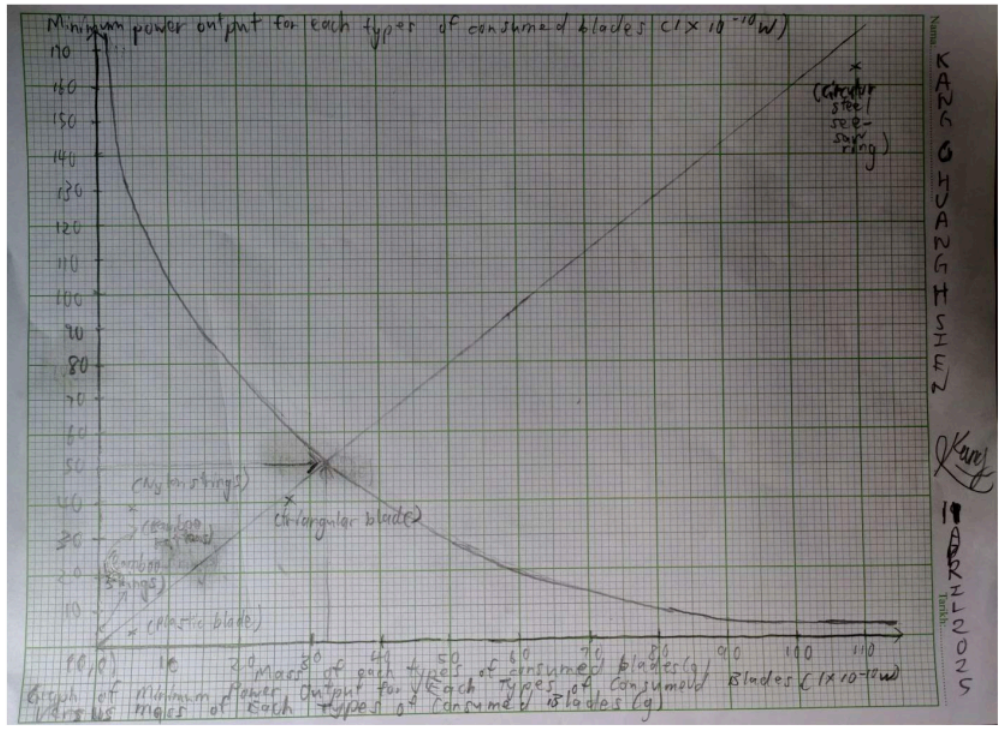
Minimum power output for each types of consumed blades (1×10⁻¹⁰W)
(Circular steel saw ring)
(Nylon strings)
(Triangular blade)
(Celestial blade)
Mass of each types of consumed blades(g)
Graph of Minimum Power Output for Each Types of Consumed Blades (1×10⁻¹⁰W) Versus Mass of Each Types of Consumed Blades (g)
KANG CHUANG HSIEN
APRIL 2025

Figure 42: Graph of Minimum Power Output for Each Types of Consumed Blades (1×10^{-10}W) Versus Mass for Each Types of Consumed Blades (g) when percentage terms involved , 11 APRIL 2025 (MALAYSIA TIMELINE)

Source: Hand-plotted by KANG CHUANG HSIEN and to be verified during prototype for "PSP"

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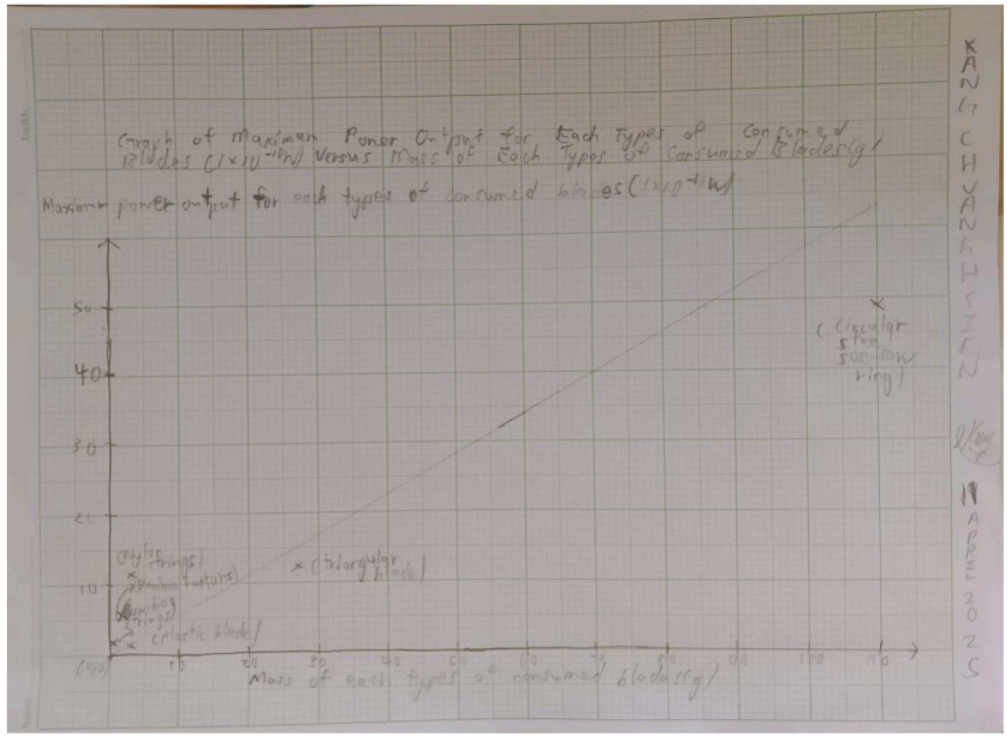
Graph of Maximum Power Output for Each Types of Consumed Blades (1×10⁻¹⁰W) Versus Mass of Each Types of Consumed Blades (g)
Maximum power output for each types of consumed blades (1×10⁻¹⁰W)
50
40
30
20
10
(Nylon strings)
(Gut strings)
(Plastic blade)
x (triangular blade)
(Circular saw ring)
Mass of each types of consumed blades (g)
KANG CHUANG HSIEN
11 APRIL 2025

Figure 43: Graph of Maximum Power Output for Each Types of Consumed Blades (1×10^{-10}W) Versus Mass for Each Types of Consumed Blades (g), 11 APRIL 2025 (MALAYSIA TIMELINE)

Source: Hand-plotted by KANG CHUANG HSIEN and to be verified during prototype for "PSP"

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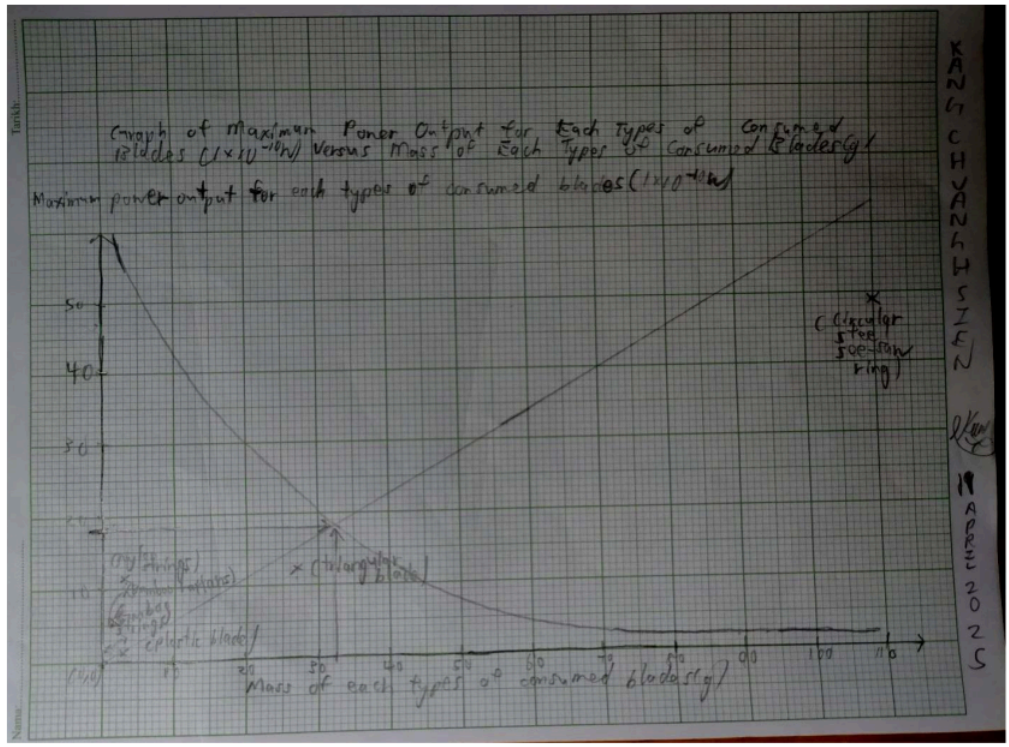
Graph of Maximum Power Output for Each Types of Consumed Blades (1×10⁻¹⁰W) Versus Mass of Each Types of Consumed Blades(g)
Maximum power output for each types of consumed blades(1×10⁻¹⁰W)
50
40
30
Circular Steel Cross-section ring
Mass of each types of consumed blades(g)
KANG CHUANG HSIEN
19 APRIL 2025

Figure 44: Graph of Maximum Power Output for Each Types of Consumed Blades (1×10^{-10}W) Versus Mass for Each Types of Consumed Blades (g) when percentage terms involved , 11 APRIL 2025 (MALAYSIA TIMELINE)

Source: Hand-plotted by KANG CHUANG HSIEN and to be verified during prototype for "PSP"

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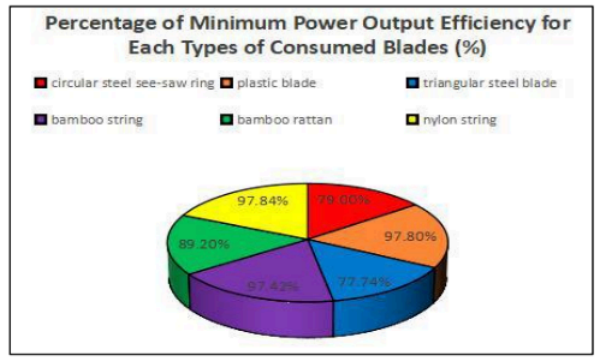

Figure 45: Percentage of Minimum Power Output Efficiency for Each Types of Consumed Blades, 11 APRIL 2025 (MALAYSIA TIMELINE)

Source: WPS Office and Google Workspace

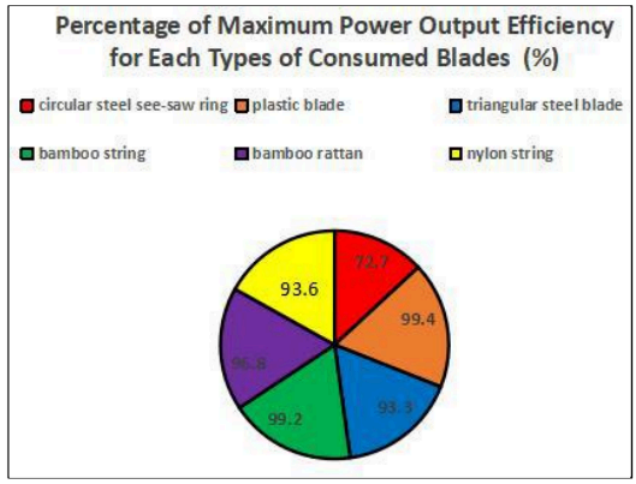

Figure 46: Percentage of Maximum Power Output Efficiency for Each Types of Consumed Blades, 11 APRIL 2025 (MALAYSIA TIMELINE)

Source: WPS Office and Google Workspace

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CHAPTER 5
RECOMMENDATION AND CONCLUSION

With strong analysis, hyper-thesis and hypothesis,when $m_e = 110.0g > m_t = 27.0g > m_p = m_n = 3.0g > m_r = 1.5g > m_b = 0.36g$, then, $P_{cminimum} = 165.775\times10^{-10}gc^2m^2s^{-3} > P_{tminimum} = 40.666\times10^{-10}gc^2m^2s^{-3} > P_{nminimum} = 38.9092\times10^{-10}gc^2m^2s^{-3} > P_{rminimum} = 19.4509\times10^{-10}gc^2m^2s^{-3} > P_{bminimum} = 4.65125\times10^{-10}gc^2m^2s^{-3} > P_{pminimum} = 3.9384\times10^{-10}gc^2m^2s^{-3}$ since $F_{cminimum} = 159.06\times10^{-7}gcms^{-2} > F_{tminimum} = 39.042\times10^{-7}gcms^{-2} > F_{nminimum} = 12.708\times10^{-7}gcms^{-2} > F_{rminimum} = 6.3542\times10^{-7}gcms^{-2} > F_{pminimum} = 4.05\times10^{-7}gcms^{-2} > F_{bminimum} = 1.525\times10^{-7}gcms^{-2}$ for alerting the emergence of minimum point. For the maximum point consideration will be $P_{cmaximum} = 49.118\times10^{-10}gc^2m^2s^{-3} > P_{tmaximum} = 12.0563\times10^{-10}gc^2m^2s^{-3} > P_{nmaximum} = 11.527\times10^{-10}gc^2m^2s^{-3} > P_{rmaximum} = 5.7632\times10^{-10}gc^2m^2s^{-3} > P_{bmaximum} = 1.3832\times10^{-10}gc^2m^2s^{-3} > P_{pmaximum} = 1.1669\times10^{-10}gc^2m^2s^{-3}$ since $F_{cmaximum} = 70.686\times10^{-7}gcms^{-2} > F_{tmaximum} = 17.350\times10^{-7}gcms^{-2} > F_{nmaximum} = 5.658\times10^{-7}gcms^{-2} > F_{rmaximum} = 2.8292\times10^{-7}gcms^{-2} > F_{pmaximum} = 1.800\times10^{-7}gcms^{-2} > F_{bmaximum} = 0.6790\times10^{-7}gcms^{-2}$

When the interaction mass of the type of the blade consumed is increased to one point of coordinate, the power output achieved by the BuzzTech 1800W 388V Cordless Grass Trimmer Mesin Rumput Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED whereby bamboo string, bamboo rattan, circular see-saw ring steel blade, triangular steel blade, nylon string and plastic blade are consumed respectively are increased. This will cause the the efficiency achieved by the BuzzTech 1800W 388V Cordless Grass Trimmer Mesin Rumput Household Grass Cutter Electric Lawn Mower P with variation of 88V-RED whereby bamboo string, bamboo rattan, circular see-saw ring steel blade, triangular steel blade, nylon string and plastic blade are consumed respectively is going down.

Circular steel see-saw ring, plastic blade, triangular steel blade, bamboo rattan, bamboo string and nylon string have respective colour symbolization such as **red, orange, blue, purple, green and yellow** for graphical section.

After that, the minimum power output for each types of consumed blades is linearly proportional to the mass for each types of consumed blade whereby the sequences order will be from bamboo string, bamboo rattan, plastic blade, nylon string, triangular steel blade and circular see-saw ring steel ring. Moreover, the maximum power output for each types of consumed blades is linearly proportional to the mass for each types of consumed blade whereby the

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sequences order will be from bamboo string, bamboo rattan, plastic blade, nylon string, triangular steel blade and circular see-saw ring steel blade.

To be more detailed, the percentage of the minimum power output for each types of consumed blades is inversely proportional to the mass for each types of consumed blade whereby the sequences order will be from bamboo string, bamboo rattan, plastic blade, nylon string, triangular steel blade and circular see-saw ring steel ring. Moreover, the percentage of the maximum power output for each types of consumed blades is inversely proportional to the mass for each types of consumed blade whereby the sequences order will be from bamboo string, bamboo rattan, plastic blade, nylon string, triangular steel blade and circular see-saw ring steel blade.

Although the percentage of maximum power output efficiency for plastic blade is slightly higher than the bamboo string and bamboo rattan, however, the bamboo rattan will be the choice since it is the material which can biodegradable, less contaminated to the environment, renewable resources, refillable energy and easy to be cultivated inside the earth condition. For instance here, the percentage of maximum power output efficiency for plastic blade is 99.4%, for bamboo rattan is 96.8% while for bamboo string will be 99.2% and the deduction product here will be 2.6% and 0.2% respectively. Bamboo rattan is more preferred than the bamboo string because it is higher in **elasticity constant** and more stable in terms of molecular structure. If bamboo string is chosen, although it is lighter and thinner, it is low in the elasticity constant properties and characteristics, **causing the elasticity forces produced between the trimmer and the trimmed grass to be reduced. Another extra points here will be the cutting effect of bamboo string is low and not to be picked. Thus, it is very very crucial to judge in variety chemical and physical characteristics and properties for the sake of selecting the great types of consumed blades from different materials backgrounds.**

When the Graph of Maximum Power Output for Each Types of Consumed Blades (1×10^{-10}W) Versus Mass for Each Types of Consumed Blades (g) is merging with the Graph of Percentage of Maximum Power Output for Each Types of Consumed Blades (%) Versus Mass for Each Types of Consumed Blades (g) as being postulated. the maximum interception point will be **(32.5g , 15×10^{-10}W)**

When the Graph of Minimum Power Output for Each Types of Consumed Blades (1×10^{-10}W) Versus Mass for Each Types of Consumed Blades (g) is merging with the Graph of Percentage of Minimum Power Output for Each Types of Consumed Blades (%) Versus Mass for Each Types of

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Consumed Blades (g) as being postulated. the minimum interception point will be **(32.5g , 58 × 10^{-10}W)**

It is noticed that that the difference between the minimum interception point and maximum interception point will be **(32.5g , 51 × 10^{-10}W)−(32.5g , 18 × 10^{-10}W) and it is equal to (0.0g , 33 × 10^{-10}W)**

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CHAPTER 6
REFERENCES

Barton, H. & Tsourou, C. (2000). *Healthy Urban Planning.* London: Spon.

Dasimah Omar (2012). Determinant factors of neighbourhood quality. *Planning Malaysia Journal of the Malaysian Institute of Planners*, 10, 1-16.

Giffinger, R, Kramar, H. & Haindl, G. (2008). The role of rankings in growing city competition. *11th European Urban Research Association (EURA) Conference*, Milan, Italy, October 9 – 11, 2008.

Kourtit, K. & Nijkamp, P. (2012). Smart Cities in the Innovation Age. *Innovation: The European Journal of Social Science Research*, 25(2), 93–95.

Mulligan, G., Carruthers, J. & Cahill, M. (2004). Urban quality of life and public policy: A survey. In R. Capello & P. Nijkamp (Eds.), *Advances in urban economics* (729–802). Amsterdam: Elsevier Science B.

Retrieved from https://sgs.upm.edu.my/

Retrieved from https://wego.here.com/

Retrieved from www.google.com

Retrieved from https://share.here.com/p/s-Yz1Qcm9wZXJ0eSUyME1hbmFnZW1lbnQ7aWQ9NDU4dzI4MzQtYjM1OWNlYzY1MTk3YzI4NTFhZjdjZTEwNmVhNGQ3MmU7bGF0PTIuOTg5Mzg7bG9uPTEwMS43MTgyNztuPUlubm9odWIrUHV0cmErU2NpZW5jZStQYXJrK1VQTTtwaD0rNjAzOTc2OTE4NDk=?z=16&t=normal

Retrieved from https://ukmsarjana.ukm.my/main/lihat_profil/SzAxNTM1Mg==

Retrieved from https://www.ukm.my/seri/expertise/dr-norasikin-ahmad-ludin-3-2/

Retrieved from http://sgsportal.upm.edu.my:8080/sgsportal/page_pageid175,39427.jsp?token=55B20A83C29C5D2B1D7C86D4ECD7E6F61C7FC8AF4EBFD152C525F475FF7585F9162AD45C2541D58579CFFFABEEE8B96B2A93D29746AC4368B3F6B669900404C03AD105175F75F771DB55B37B35CB6887E9AD89B8C49D4F98A49276CEEFCB45819FF75F291AEB19F5C6EE7E03F5F3812525A9D4071E1A449CA1584E15A614842FA54B71DE8150F442FF68B662555C87741

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Retrieved from
https://sgs.upm.edu.my/documentfile

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https://sciencepark.upm.edu.my/faildokumen?L=en

Retrieved from https://www.scribd.com/document/708980246/Borang-Permohonan-Permit- Penerbitan

Retrieved from https://www.scribd.com/doc/195672980/Borang-Permohonan-Lesen-Mesin- Cetak

Retrieved from
https://www.shopee.com.my

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https://www.turnitin.com/s_home.asp?r=31.0797526360858&svr=6&lang=en_int&

Retrieved from https://www.ums.edu.my/penerbitv2/files/borang_eISSN-1-1.pdf

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https://www.pnm.gov.my/index.php/pages/view/26

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http://eltc.edu.my/files/Borang%20Permohonan%20ISSN(1).pdf

Retrieved from
https://pnc.umpsa.edu.my/index.php/en/corporate/download2/borang-permohonan/35-borang-penerbitan-issn/file

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https://www.openstreetmap.org/#map=19/3.002776/101.707899

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https://www.openstreetmap.org/#map=17/3.005624/101.708014

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https://profile.upm.edu.my/surina_k

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https://profile.upm.edu.my/voonching

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https://sgs.upm.edu.my/visitus/deans_office-26138

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Retrieved from https://mysafe.kpdn.gov.my/img/portal/consumer-safety/akta_perlindunganpengguna1999.pdf

Retrieved from https://mysafe.kpdn.gov.my/img/portal/consumer-safety/599_Act_As_at_1_November_2019.pdf

Retrieved from https://www.legislation.gov.uk/uksi/2014/870/pdfs/uksi_20140870_en.pdf

Retrieved from https://sso.agc.gov.sg/SL-Supp/S43-2014/Published/20140128170000?DocDate=20140128170000

Retrieved from https://www.legislation.gov.uk/uksi/2013/3134

Retrieved from https://www.mti.gov.sg/-/media/MTI/Legislation/Legislation/Cancellation-of- Contracts.pdf

Retrieved from https://mauritiusassembly.govmu.org/mauritiusassembly/wp-content/uploads/2023/03/bill0214.pdf

Retrieved from https://www.nist.gov/standardsgov/compliance-faqs-rohs

Retrieved from https://ias-malaysia.com/rohs-certification-in-malaysia/

Retrieved from https://assets.publishing.service.gov.uk/media/5ef5d22be90e075c5674daf4/11-526-rohs-regulations-government-guidance-notes.pdf

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Retrieved from
https://www.ipc.org/system/files/technical_resource/E16%26S09-02.pdf

Retrieved from
https://www.fcc.gov/logos

Retrieved from
https://www.fcc.gov/licensing

Retrieved from
https://www.etai.org/

Retrieved from https://www.federalregister.gov/documents/2015/08/06/2015-18402/equipment- authorization-and-electronic-labeling-for-wireless-devices

Retrieved from
https://mddb.apec.org/Documents/2017/SCSC/WKSP2/17_scsc_wksp2_003.pdf

Retrieved from
https://www.standardsportal.org/usa_en/USG/fcc.aspx

Retrieved from
https://prpm.dbp.gov.my/cari1?keyword=saintifik

Retrieved from https://www.gov.uk/government/organisations/government-office-for-science

Retrieved from https://www.gov.uk/government/publications/functional-standards-common- glossary

Retrieved from
https://assets.publishing.service.gov.uk/media/5a806ebd40f0b62305b8b1fa/PRIMARY_national_curriculum_-_Science.pdf

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https://mysafe.kpdn.gov.my/portal/post/5

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https://www.mcc.gov/resources/branding/mcc-guidelines/

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https://sgs.upm.edu.my/upload/dokumen/20241003115032Postgraduate_Candidature_Checklist_(By_Research)_Updated_3.10.2024.pdf

Retrieved from
https://sgs.upm.edu.my/upload/dokumen/20241003115032Postgraduate_Candidature_Checklist_(By_Research)_Updated_3.10.2024.pdf

Retrieved from
https://sgs.upm.edu.my/upload/dokumen/20250407124409202503241538 50Postgraduate_Candidature_Checklist_(By_Research)_12.3.2025.pdf

Retrieved from
https://sgs.upm.edu.my/content/office_of_deputy_dean_graduate_studies_for_the_faculty_school_and_deputy_director_for_the_institute-62140?L=en

Retrieved from
https://sgs.upm.edu.my/current_students/postgraduate_candidature_checklist-12652

Retrieved from
https://mycrs.posdigicert.com.my/Certificate/ViewStatus

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https://iponlineext.myipo.gov.my/SPHI/Extra/IP/PT/Keyin.aspx?sid=638799656840211098

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https://mycrs.posdigicert.com.my/Public/StatusApplicationNEW

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https://youtu.be/4AlaM2lJPVQ?si=nbcGlc5oOg7f3uib

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APPENDICES & APPENDIX

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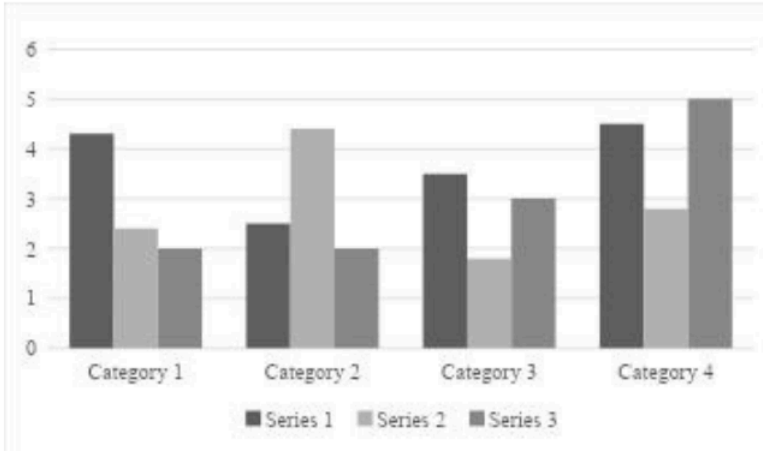

Figure 47: 10pt, Times New Roman, centred, grayscale
Source: Size 8pt Italic, centred

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GADGET BASE PLT 201804004071
No. 7004, Jalan Pbr 38, Kawasan Perindustrian Bukit Rambai, 75250

ORDER RECEIPT

Customer Name: KANGCHUANGHSIEN

Customer Address: 26 , 26, JALAN BERINGIN, VILLA KRISTAL HEIGHTS, 68100 BATU CAVES, SELANGOR, Gombak, 68100, Selangor

Receipt Number: 2504123NTCEW93

Receipt Date: 16/04/2025

Order SN: 2504123NTCEW93

Order Paid Date: 12/04/2025

Payment Method: SPayLater

Order Details

No.	Product	Variation	Net Product Price	Qty	Subtotal
1	Helmet Budak Kids Helmet Motorcycle Children Security Motorcycle Helmets Half Face Cartoon Helmet To	Yellow-4-12years old	23.00	1	23.00
2	BIG YELLOW DUCK Cute shape Seiko printed Does not fade pinch out the sound Tasteless and harmless Sh	4*3.5*3.4cm	0.00	1	0.00

Subtotal **RM 23.00**
Total Quantity (Active) 2 items

Merchandise Subtotal	23.00
Shipping Fee	5.60
Shipping Discount Subtotal	-5.00
Shipping Fee SST	0.04
Shopee Voucher Applied	-2.00
Shop Voucher Applied	-3.68
Total Paid	**RM 17.96**

For service tax on shipping fee purposes:

Total exclusive of service tax	5.60
Service tax on shipping fee (6%)	0.04
Total inclusive of service tax	**5.64**

1 of 2
Continue to next page

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GADGET BASE PLT 201804004071
No. 7004, Jalan Pbr 38, Kawasan Perindustrian Bukit Rambai, 75250

ORDER RECEIPT

Note This document is issued by Shopee Mobile Malaysia Sdn Bhd (Business address: Level 25, Menara Southpoint, Mid Valley City, Lingkaran Syed Putra, 59200 Kuala Lumpur; LVG Registration No. 2302010004; SST Registration No. W10-1808-32001158) for the purposes of sales tax on low value goods under Sales Tax Act 2018 and service tax on delivery fees under Service Tax Act 2018. The actual contract for sale of product(s) is directly between Buyer and Seller and Shopee is not a party to that or any other contract between Buyer and Seller and accepts no obligations in connection with any such contract. For more information, please refer to Shopee's Terms of Service at https://help.shopee.com.my/portal/article/77215.

2 of 2
End of receipt

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Figure 48: Extra safety helmet with the transparent wind shield during trimming grass actions and activities, 16 APRIL 2025
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That Hin Loong Enterprise Sdn Bhd 687979-M
No 30, Jalan INR 1, Taman Industrial Nautical, 48000 Rawang, Selangor

ORDER RECEIPT

Customer Name: KANGCHUANGHSIEN

Customer Address: 26 , 26, JALAN BERINGIN, VILLA KRISTAL HEIGHTS, 68100 BATU CAVES, SELANGOR, Gombak, 68100, Selangor

Receipt Number: 250416DWYRS2VV

Receipt Date: 21/04/2025

Order SN: 250416DWYRS2VV

Order Paid Date: 16/04/2025

Payment Method: SPayLater

Order Details

No.	Product	Variation	Net Product Price	Qty	Subtotal
1	COLEX Rubber Yellow/Black PVC Rain Boot Kasut Getah Safety Rubber Shoe Anti Slip	Black,43	12.00	1	12.00

Subtotal **RM 12.00**
Total Quantity (Active) 1 items

Merchandise Subtotal	12.00
Shipping Fee	4.90
Shipping Discount Subtotal	-4.90
Shop Voucher Applied	-5.00
Total Paid	**RM 7.00**

1 of 1
End of receipt

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Figure 49: Extra safety shoes during trimming grass actions and activities, 21 APRIL 2025 (MALAYSIA TIMELINE)

Source: https://www.shopee.com.my

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OPTIMIZATION OF LIGHT TRAMISSION, MECHANICAL PROPERTIES AND DIMENSIONAL STABILITY OF A THICK BAMBOO BIO-CELLULOSE (GIGANTOCLOA ALBOCILIATA) FOR SOLAR CELLS SUBSTRATE LAYER

By

KANG CHUANG HSIEN

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfillment of the Requirements for the Master of Science in Materials Engineering

Month and 2025 of Viva Voce

The objective of this research project is to investigate the relationship between the interaction mass for the type of the blade consumed with the type of the blade consumed since the entire system is more to solar energy system. Another reasoning will be to interrogate the relationship between power output achieved by the BuzzTech 1800W 38SV Cordless Grass Trimmer Household Grass Cutter Electric Lawn Mower P with variation of 38V-RED whereby bamboo string, bamboo rattan, circular see-saw ring steel blade, triangular steel blade, nylon string and plastic blade are consumed respectively with the interaction mass of the type of the blade consumed since the entire system is more to solar energy system. Excess aims here will be to inspect the relationship between the efficiency achieved by the BuzzTech 1800W 38SV Cordless Grass Trimmer Household Grass Cutter Electric Lawn Mower P with variation of 38V-RED whereby bamboo blade, circular see-saw ring steel blade, triangular steel blade, nylon string and plastic blade are consumed respectively with the interaction mass of the type of the blade consumed since the entire system is more to solar energy system. All processes must be approved by **Putra Science Park (PSP) UPM** for the purpose of graduate requirements. All the essential forms and documents to be activated via physically and online will be "GS-05b STUDY SCHEME FOR GRADUATION", "GS-10a NOMINATION SUPERVISOR", "GS-11 RESEARCH PROGRESS REPORT", "GS-14a SUBMIT NOTICE OF THESIS SUBMISSION", "GS-15a THESIS SUBMISSION FOR EXAMINATION", "GS-16a SUBMISSION OF FINAL EXAMINATION AFTER VIVA", "GS-16b FINAL SUBMISSION OF THESIS", "GS-17 GRADUATION", "GS-25 INFORMATION ON PUBLICATION DURING CANDIDATURE", "GS-30 LETTER OF CERTIFICATION OF ENROLLMENT" and "GS-50 AMENDMENT OF COURSE STATUS" during this abstract production. Especially, the "GS-30 LETTER OF CERTIFICATION OF ENROLLMENT" is to be fulfilled first.

School of Graduate Studies
Universiti Putra Malaysia
43400 UPM Serdang
Selangor, Malaysia